REPORT

OF THE

INDIAN FAMINE COMMISSION.

PART I.

FAMINE RELIEF.

Presented to both Houses of Parliament by Command of Her Majesty.

LONDON:
PRINTED BY GEORGE EDWARD EYRE AND WILLIAM SPOTTISWOODE,
PRINTERS TO THE QUEEN'S MOST EXCELLENT MAJESTY.
FOR HER MAJESTY'S STATIONERY OFFICE.

1880.

[C.—2591.] *Price* 5*s*.

COMMISSION of INQUIRY on INDIAN FAMINES, appointed by the Govt. of INDIA, 16th May 1878.

Gen. R. STRACHEY, R.E., C.S.I., F.R.S., *President.*

JAMES CAIRD, C.B., Member of the English Enclosure and Copyhold Commission.

Hon. H. S. CUNNINGHAM, Judge of the High Court, Calcutta.

G. A. BALLARD, Madras Civil Service.

G. H. M. BATTEN, Bengal Civil Service.

J. B. PEILE, C.S.I., Bombay Civil Service.

C. RANGACHARLU, C.I.E., Controller of His Highness the Maharaja's Household, Mysore.

MAHADEO WASADEO BARVÉ, Karbari of the Kolhapur State.

} *Mem*

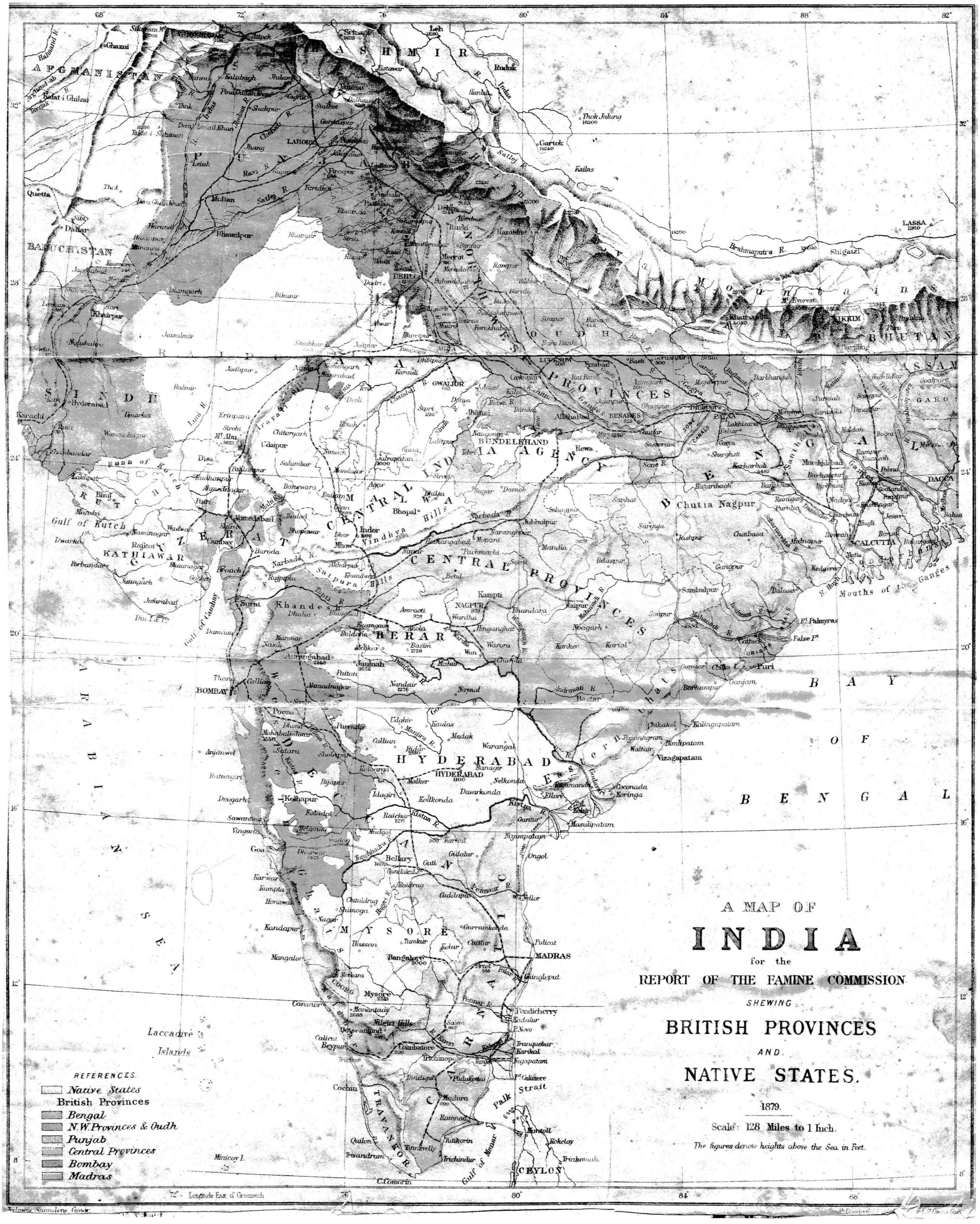
C. A. ELLIOTT, C.S.I., Bengal Civil Service, *Secretary.*

N.B.—Mr. BALLARD was replaced by Mr. H. E. SULLIVAN, of the Mad Service, in January 1879.

Mr. BATTEN terminated his connection with the Commission in April

Messrs. RANGACHARLU and BARVÉ ceased to be members of the Commission in October 1879, in consequence of their inability to accompany the other members to England.

TABLE OF CONTENTS.


A MAP OF
INDIA
for the
REPORT OF THE FAMINE COMMISSION
SHEWING
BRITISH PROVINCES
AND
NATIVE STATES.
1879.
Scale: 128 Miles to 1 Inch.
The figures denote heights above the Sea in Feet.
REFERENCES.
Native States
British Provinces
Bengal
N.W. Provinces & Oudh
Punjab
Central Provinces
Bombay
Madras
Longitude East of Greenwich
AFGHANISTAN
BALUCHISTAN
KASHMIR
PUNJAB
SINDH
RAJPUTANA
NORTH WEST PROVINCES
OUDH
BENGAL
CENTRAL INDIA AGENCY
CENTRAL PROVINCES
BERAR
HYDERABAD
MYSORE
COORG
TRAVANKOR
CEYLON
KATHIAWAR
KUTCH
GUZERAT
MALWA
BUNDELKHAND
Chutia Nagpur
SIKKIM
BHUTAN
Himalaya Mountains
Western Ghats
Eastern Ghats
Vindhya Hills
Satpura Hills
ARABIAN SEA
BAY OF BENGAL
Gulf of Kutch
Gulf of Cambay
Gulf of Manar
Palk Strait
Mouths of the Ganges
Laccadive Islands
Minicoy I.
Peshawar
Lahore
Multan
Delhi
Agra
Lucknow
Benares
Allahabad
Patna
Calcutta
Dacca
Lassa
Mt. Everest
Darjiling
Quetta
Karachi
Hyderabad
Ahmedabad
Baroda
Surat
Bombay
Poona
Nagpur
Jubbulpur
Indor
Bhopal
Gwalior
Cuttack
Puri
Vizagapatam
Masulipatam
Madras
Pondicherry
Bangalore
Mysore
Goa
Mangalor
Calicut
Cochin
Trivandram
C. Comorin

REPORT

OF THE

INDIAN FAMINE COMMISSION.

PART I.

PRELIMINARY.

Instructions of the Secretary of State and Government of India.—Arrangement of the Report.—Geographical Sketch of India.—Population and Climate.

1. THE Despatch of the Secretary of State for India which directed the appointment of our Commission thus stated the general object which he had in view. "It is evident that the protection of the people of India from the effects of the "uncertainty of the seasons will constitute in the future no inconsiderable portion "of the work of the Government. It is therefore a duty to collect with the "utmost care all information which may assist future administrators in the task of "limiting the range or mitigating the intensity of these calamities." It was pointed out that information was required principally on two classes of subjects. Of these one would include all that related to the measures to be adopted where severe scarcity or famine had actually arisen, and would involve an inquiry into the results of past experience as to the best system of famine-relief, with special reference to such topics as the size and class of relief-works, the nature of the tests to be employed, the amount of wage, the quantity of food necessary to sustain health and strength in famine-labourers, and the conditions under which Government might interfere with the ordinary course of trade in the supply of food in a tract suffering from famine. The other part of the Commission's inquiry was to be directed to the question "how far it is possible for Government, "by its action, to diminish the severity of famines, or to place the people in a "better condition for enduring them." Under this head, the nature and extent of the protection to be obtained from increased irrigation and from improved communications, the manner and degree in which they can properly be extended, and the question how far the saving in relief-expenditure might justify the construction of works not otherwise remunerative, were indicated as topics especially deserving of careful consideration. Attention was directed to opinions which had been expressed that the effect of the tenure prevalent in Madras was to discourage the construction of wells, and that in some parts of the Deccan the progress of irrigation had been impeded by the poverty of the ryots; and to the importance of ascertaining how far the facts supported such views.

Summary of Secretary of State's Despatch, dated 10th Jan. 1878. Para. 5.

Para. 8.

Para. 10.

Para. 9.

Para. 11.

Paras. 12–14.

Para. 17.

Para. 19.

2. The Government of India, when appointing the Commission, somewhat amplified the instructions conveyed in the despatch of the Secretary of State, and indicated with more distinctness several topics which it was especially desirable that the Commission should investigate.

Government of India Resolution (Public Works Famine), 16th May 1878.

3. First, attention was drawn to the possible existence of peculiarities in the administrative system of particular Provinces, which might tend to assist or retard the action of Government in its struggle with famine. With regard to the results of famine, it was pointed out that, though it might be impossible to ascertain exactly the extent of the mortality directly attributable to famine, the Commission might obtain fairly trustworthy information as to the classes and sexes which especially suffered, the effect of famine on the birth-rate of the country, and generally "how far local influences, peculiarities of administration or tenure, climate, "soil, water, density of population, systems of cultivation, &c., have tended to "mitigate or intensify the inevitable effects of famine." It was also remarked that the inquiry into the alleged unwillingness of the Madras ryot to expend money on means of irrigation, by reason of the ryotwari tenure, might be extended so as to embrace other analogous questions, and that the task of the Commissioners would not be completely discharged unless they considered such matters as the comparative power of the agricultural population in different Provinces to resist the effects of drought, their comparative wealth, and the relation, in each case, of their well-being to the varying forms of land-tenure.

Effect of local influences. Para. 3.

Para. 4.

Para. 5.

Character of relief works. Para. 6.

4. As regards the system of relief, after observations as to the commonly accepted necessity for applying tests of some kind before giving relief, and reference to the importance of determining what those tests should be and how they should be applied, the attention of the Commission was specially directed to the opinion at which the Government arrived after the famine of 1874, "that large works were suitable at "an early stage of distress, and smaller works subsequently; as the necessity for "them arises;" and to the policy, laid down in the Viceroy's Minute of 12th August 1877, that "at the beginning of a famine, relief employment, at a subsistence-rate "of wage, should be provided on large fully supervised works which will be of "permanent use to the country;" and the Commission was desired to report whether the experience of recent famines had tended to confirm or modify the policy thus defined, and especially whether small works near the people's homes may, under any and what circumstances, be accepted as a part of the relief system. Further,

Paras. 7–8, 10. Para. 9.

in connexion with this branch of the subject, many points were noticed relating to the system of relief to be followed in the future, and particularly that of the proper extent and limitation of the duty of the Government in respect to the supply, importation, and distribution of food required for districts suffering from famine.

Irrigation. Para. 11.

5. With regard to the second branch of the inquiry, it was pointed out that the questions of the degree in which irrigation may be looked upon as an efficient protection, of what has been or can be done by Government in this direction, of the actual effect of existing irrigation, and of the influence of forests on the rainfall and the denudation of the soil, had led to much controversy; and the Government desired that the whole subject should be exhaustively treated, special notice being

Para. 12.

taken of any defects of administration that may have contributed to retard the extension of irrigation in the less successful works of this nature.

Agricultural improvement. Para. 13.

6. Another field of inquiry suggested was that of practical improvements in agriculture, and of the best means of giving an impetus to the efforts of the State to encourage this branch of national industry.

Communications. Para. 14.

7. With regard to communications, we were desired to submit any information that might assist the Government in regulating its action as to the extension of railways, and in judging of the practicability of improving or adding to the internal water communications; the reduction of cost of transport obtained by these means being of primary importance in the distribution of food supplies. Attention was also directed to the difficulties which, during the recent famines, arose from the inadequacy of the existing railway staff and rolling-stock when subject to the abnormal pressure to which famine times necessarily give rise, and some other details of railway management.

Provincial responsibility. Paras. 15, 16.

8. The Commission was further reminded of the recent declarations of the Government of India, that in future the responsibility for outlay occasioned by famine relief should primarily devolve on the Provincial Governments, and suggestions were invited for developing and facilitating the execution of the policy of the Government of India in this direction.

Recent distress in North-Western Provinces. Paras. 17–19.

9. Inquiry was also suggested as to any light which the history of the distress of 1877–78 in the North-Western Provinces might throw on the question of famine relief, more particularly with reference to the expediency of supplementing relief based on works by a proper system of village inspection, and of strengthening the subordinate civil district agency for this purpose at a very early stage of threatened famine or general scarcity.

Miscellaneous. Paras. 20, 21, 22.

10. Agricultural statistics,—gratuitous relief and the restrictions under which it can be safely given,—emigration,—suspension and remission of revenue,—deficiencies in the existing district organization with regard to the supervision of relief,—and the relations to be observed with Native States in famine management, are among other topics expressly brought to the Commission's notice.

Issue of inquiries by the Commission.

11. We considered that it would be impossible to deal in any satisfactory manner with the varied and difficult subjects thus proposed for our consideration without further information, more detailed and exact than could be collected from the Government records at our command. As to many subjects no information was available: as to many others such information as could be had was deficient in accuracy or completeness, and light could be thrown on them only by means of direct inquiry from the classes of persons conversant with each. We thought, accordingly, that the first step towards a proper fulfilment of the duty laid upon us was to ascertain, with all the fulness and exactness of which the case admitted, the facts with which we had to deal, and the opinions of qualified persons upon them. A carefully-considered series of inquiries was therefore drawn out, and each of the

...ntrust the ...
to the officials most competent to give valuable and trustworthy opinions, and to invite qualified non-official persons also to co-operate in like manner. The information thus collected has furnished us with much very valuable knowledge as to the material condition of the people, and in many important directions serves as the basis of that portion of our Report which deals with the administration of famine relief.

12. The Commission decided to supplement and complete these inquiries by visiting the several Provinces in turn, and there holding personal communication with some of the best-informed local officials or other persons of weight. The oral evidence thus taken, both as to the management of famine-relief and as to general administration, supplies another principal part of the body of authority on which we have formed our opinions as to the condition of the inhabitants, the best means of counteracting the results of famine, and generally of promoting the well-being of the country.

13. With a view to the more thorough investigation of the various matters connected with irrigation, especially in Orissa and Madras, to which the attention of the Commission had been particularly directed, we considered it desirable that a Committee of specially-selected officers should conduct an inquiry on the spot; and the Report submitted by them throws great light on these subjects.

14. Before proceeding further in the discussion of the questions referred to us, it will be convenient to state the order and general manner in which we propose to deal with them. We shall first give a concise sketch of the geography, population, and climate of British India, indicating generally the degree in which each part of the country is exposed to famine. Next we shall treat of the measures to be adopted for famine relief, prefacing our conclusions and recommendations by a concise historical review of past famines and the measures adopted to meet them. We shall then deal with the inquiry (to use the words of Lord Salisbury's despatch) "how far it is possible "for Government by its action to diminish the severity of famines, or to place the "people in a better condition to endure them." This part of our Report will be prefaced by [illegible] account of the country in relation to the social and economical [illegible] its the form of administration, the progress of material improvement [illegible] tional subjects, on the consideration of which our reply to this part of the [illegible]s, a based. The Report will be accompanied by a detailed history of all the past fa[illegible] regarding which sufficient records exist, a model famine code, and appendices containing a collection of discussions on certain topics which call for fuller consideration than would have been convenient in the Report, and selections from the evidence and documents of which we have made use.

15. The total area of British India is about 1½ million square miles, and the population 240 millions. Of this nearly 600,000 square miles, containing a population estimated at 50 millions, belong to the Native States not under British administration; the remainder, about 900,000 square miles, with 190 millions of people, is under direct British rule.

16. The distribution of area and population among the principal provinces under British administration is shown below:—

		Area in Square Miles.		Population in Millions.	
British Provinces	Bengal, with Assam	200,000		65	
	Madras	140,000		31½	
	Bombay	77,000		14¼	
	Sindh	47,000		2	
	North-West Provinces and Oudh	105,000		42	
	Punjab	105,000		17½	
	Central Provinces	85,000		8¼	
	Burmah	90,000		2¾	
	Ajmir and Coorg	4,000		½	
			853,000		183¾
Native States administered by British officers.	Mysore	29,000		5	
	Berar	18,000		2¼	
			47,000		7¼
	Total		900,000		191

chief Na

as follows:—

	Area in Square Miles.	Population in Millions.
States of Rajputana - - - -	131,000	10
Do. of Central India and Bundelkhand -	89,000	8¼
Hyderabad (Nizam) - - - -	80,000	9
Baroda - - - - -	4,000	2
Native States in Bengal (chiefly Hill States) -	46,000	2½
Do. Madras - - -	10,000	3⅓
Do. Bombay - - -	66,000	6¾
Do. the North-West Provinces -	5,000	½
Do. Punjab - - -	115,000	5½
Do. Central Provinces - -	29,000	1
Total - - -	575,000	49

Tracts in which the British Government is not responsible for relieving famine.

18. In considering the obligation to provide relief and protection from famine for the population of India, it must be borne in mind that the responsibility does not rest on the British Government as regards the vast area under Native rulers. Cashmere, Rajputana, Central India, the Native States in Guzerat and the Southern Maratta country, and the territories of the Nizam, have all in various years suffered from the visitation of famine, in the relief of which the British Government has not been able to interpose otherwise than by advice, except where the administration has temporarily passed into its own hands. Moreover several of the earlier famines recorded in the historical part of our Report occurred in provinces which were not at the time under British rule. The districts in the Deccan in which drought has most frequently caused anxiety to the Government and called for measures of relief, came under British administratio[illegible] parts of the North-Western Provinces which famine has repea[illegible] ded or conquered in 1801 and 1803. The cession of the g[illegible] were ceded also from 1803. Bellary and Cuddapah, with the Carnati[illegible] Orissa dates [illegible] st of Madras, were ceded at the beginning of the centu[illegible] he east co[illegible] annexed in 1824. The Central Provinces passed under British a[illegible] partly by cession in 1818, partly by lapse in 1854. The coast territory between the Mahanadi and the Kistna rivers, known as the Northern Circars, was ceded in 1760; and the government of Bengal was not formally undertaken by the British until 1772. The Punjab was not annexed till 1848, nor Oudh till 1856.

Temperature.

19. India may be approximately described as lying half to the north and half to the south of the tropic. The whole country, excepting a comparatively small fraction of mountain, is subject to very great summer heat. In the southern half, though the maximum heat is less than in the north, the winter portion of the year is much less cold, so that the climate has generally a tropical character throughout the year, modified to some extent by the elevation of the central region of high land which rises to about 2,000 feet above the sea, while the provinces of the north have a distinct season of winter cold, when the climate is that of the warmer temperate zone.

Geography: The northern plain and the central elevated platean.

20. The Northern Provinces of British India occupy a great unbroken plain which extends from the Himalaya mountains to the Arabian Sea and the Bay of Bengal, and is traversed by the Rivers Indus and Ganges and their tributaries. Of the central and southern region the larger part consists of a hilly plateau or table-land, roughly triangular in shape, which projects into the Indian Ocean. Of the western flank of this plateau, the southern half forms the mountains known as the Western Ghats which rise abruptly from the sea to an elevation that seldom exceeds 4,000 feet, though the Nilgiri mountains, near the southern end of the range, rise to 8,000 feet; and the northern half constitutes the Aravali hills, which separate Rajputana from the plain of the Indus. The eastern margin is less sharply defined, is less in elevation, and has a greater breadth of lowlying land between its foot and the sea; the southern part is known as the Eastern Ghats, and on the north it merges in the hills of Western Bengal. The northern border of the plateau is still less sharply defined, and gradually declines in the north-west, where it breaks up into small hills, and the line which separates it from the great northern plain can hardly be distinguished.

Altitude of the plateau.

21. The average altitude of this central plateau is about 1,500 feet above the sea, being greatest in the south, where, in the Province of Mysore, it rises to 3,000 fee

and generally greater on the west than on the east, so that nearly all the larger rivers—the Kaveri, Kistnah, Godavari, and Mahanadi—run off to the eastward, the Tapti and Narbada alone flowing to the west.

The Punjab and Sindh.

22. The territories of the Punjab occupy the north-western angle of the great plain, and extend along the Himalaya west of the Jumna, up to the frontier of Afghanistan, also stretching southward a little beyond the point where the five rivers which give the name to the province unite in the Indus. The tract lying along the foot of the Himalaya is well watered, but the rain-fall everywhere decreases as the mountain range is more distant. In the southern districts between the Satlej and the Jumna there is barely sufficient rain for agricultural purposes, and here the failure of the monsoon has frequently involved the country in droughts. The districts west of the Satlej at a distance from the northern mountains are still more deficient in rain, and rely for their cultivation almost exclusively on artificial irrigation; they are from this cause to a great extent uncultivated, for though the soil is believed to be fertile if supplied with irrigation, and the many large rivers that traverse the country afford abundant water, it has till now been but partially utilised. Between the Punjab and the sea lies Sindh, a country almost wholly without rain, and almost entirely dependent on artificial irrigation from the Indus for its agriculture and its power to support its scanty population. But here, as in the Southern Punjab, the supply of river water is not liable to such serious failure as to produce general loss of the crops, and famine from drought is hardly known.

The North-Western Provinces and Oudh.

23. The North-Western Provinces and Oudh form the upper part of the great plain of the Ganges to the west of Bengal, and lie between the Himalaya mountains and the hilly border of the central plateau, the northern margin of which comprises parts of Bengal, the Central Provinces, and Rajputana. The average rain-fall increases as we pass from west to east, and also as the Himalaya is approached. In the tract lying along the foot of the mountains much rice is grown, and it is subject to severe losses of its crops, and has at various times suffered considerably. The region between the Ganges and the Jumna is now almost completely protected from drought by its irrigation canals. But the districts south of the Jumna below Agra are poor in soil, their rain-fall is precarious, and little has been done there for artificial irrigation; and this region has been severely afflicted whenever drought has visited the province.

Bengal and Assam.

24. Bengal, which occupies the deltas of the Ganges and Brahmaputra, is flanked on the east by the hilly regions which separate it from the valley of the Irrawaddy, and on the west by another hilly tract which forms the eastern border of the central plateau already described. This province, which is chiefly a great alluvial plain producing rice, is alike the most populous and productive of any in British India. In the eastern half of it drought is unknown; in the western half and the southern portion, called Orissa, there have occasionally been severe famines, due not so much to absolute failure of the rains as to their premature cessation at a time when the rice crop particularly needs water. Assam, lying along the valley of the Brahmaputra, is a tract which has never yet been visited by drought; it contains a vast area which will in the future afford an opening for a great extension of cultivation. Sylhet and Cachar, two of the more eastern districts of the delta, and somewhat similar in character to Assam, are for administrative purposes united with that province.

The Native States of Central India.

25. Between the valley of the Narbada and the southern border of the Punjab and the North-West Provinces lie the Native States of Rajputana and Central India, occupying a tract of high and hilly land, and extending at a lower level to the west of this hilly region as far as the confines of Sindh. This western region in its main characteristics is not greatly removed from desert. The eastern tract, which is a portion of the northern plateau, is not of any remarkable fertility, and except at the south-west angle, where the rain-fall is comparatively certain, is much exposed to the risk of drought which attends the failure of the south-west monsoon.

The Central Provinces and Berar.

26. The Central Provinces and Berar include the districts lying along the upper parts of the Tapti and Narbada rivers, along several of the northern affluents of the Godavari, and along the western feeders of the Mahanadi. Berar lies between the Central Provinces and the north-eastern portion of the Bombay Deccan, and forms the northern part of the Nizam's territory, though administered by British officers. These districts, though everywhere more or less intersected by hills, include in many parts very fertile plains or valleys. The western districts of the Central Provinces lying along the valleys of the Narbada and Tapti enjoy a plentiful rain-fall which has never been known to fail; and the only tracts which have ever suffered from drought are those to the north

of the Narbada, which share the characteristics of the hilly region described in the preceding paragraph, and the eastern districts, which are contiguous and in their nature somewhat akin to Orissa.

27. The Bombay Presidency, the north-west portion of which, Sindh, has been already described, includes the territory of the western coast from the limits of Madras to the frontier of Baluchistan, and the portion of the upland plateau of the Deccan which borders on the Western Ghats. The narrow strip of lowland country between the Western Ghats and the sea is well watered, and where there is sufficient depth of soil is richly productive. The central Bombay districts on the Deccan plateau have a poor and shallow soil, and the portion beyond the influence of the heavy rain-fall on the Ghats is exposed to severe drought, and has frequently suffered extreme distress. Khandesh, which may be described as an extension of the Deccan at a lower level along the Tapti valley, has a richer soil. Guzerat is the still richer lowland region about the mouths of the Narbada and the other rivers which fall into the Gulf of Cambay. The Native States of Kathiawar and Kutch have a poorer soil and a smaller rain-fall than the British districts, and are therefore more liable to suffer severely from drought.

28. Hyderabad, or the territory of the Nizam, is divided into two distinct regions. In the west the country is of the same character as the Deccan districts of Bombay, and this tract, especially at its southern edge, has frequently been visited by drought and famine. The eastern part is more hilly, and shares in the influences of the south-east monsoon. It contains numerous tanks and grows much rice, and no serious drought has been recorded here.

29. The Presidency of Madras includes (1) a part of the Deccan plateau adjacent to the southern districts of Bombay and the territory of the Nizam; (2) the region below this plateau, which occupies a broad belt on the east coast from Orissa southwards and a narrow one on the Malabar coast, and extends from the extremity of the Peninsula to the southern termination of the table-land at the Nilgiri mountains. The districts on the Deccan plateau are, along with the native state of Mysore, which occupies the southern end of the table-land, exposed to the same danger of famine as the upland districts of Bombay; and their tank system, largely developed as it is, fails to protect the crops in seasons of extreme drought. The eastern and southern districts of Madras lie under different climatic conditions from the rest of India, as they depend more for their rain on the north-east than on the south-west monsoon. They are protected by the artificial irrigation provided from the Godavari, Kistna, Kaveri, and other smaller rivers, and a multitude of tanks, and they have not been so frequently or severely ravaged by famine as the country on the inland plateau.

30. British Burmah lies on the east coast of the Bay of Bengal, its richest districts being formed by the deltaic plains at the mouths of the Irawady and Salwen rivers. This province is by its peculiar conditions of climate believed to be quite removed from danger of drought and consequent famine, and is specially deserving of our notice as supplying a source from which a large provision of food grain may always be secured for India.

31. The 190 millions who compose the population of the British provinces, regarding which alone any trustworthy information can be given, may be classified roughly as follows according to their occupations:—

Agricultural	-	56 per cent. or 106 millions.
Traders	-	18 per cent. or 34 millions.
Labourers	-	16 per cent. or 30 millions.
Professional and Service	-	10 per cent. or 20 millions.
Total	-	190 millions.

The labourers, however, are mostly employed on the land, and many of the traders and artisans have small holdings, so that the numbers interested in agriculture are really much more numerous than the above figures would show. The population of the towns (including under this title towns with 5,000 inhabitants and upwards) is about 14 millions, of which 5½ millions are collected in the 44 largest cities. The rural population is therefore 176 millions, and is distributed among 490,000 villages, having on an average 386 inhabitants each. The density of the population is, on the average of all British India, 211 to the square mile. The largest population in a rural district is about 800 to the square mile, but the numbers vary greatly in

different provinces and districts, and the following table will give a general idea of their distribution:—

Province.	Population of Rural Districts per square mile.		
	Average.	Greatest.	Least.
Punjab - - -	173	532	51
North-Western Provinces -	378	659	109
Bengal - - -	397	778	92
Central Provinces - -	97	177	45
Bombay - - -	131	501	90
Madras - -	226	540	118

Of the rate of increase of the population little is known at present. The enumeration has nowhere been such as to be altogether free from doubt, and in only two provinces has more than one regular census been taken. In one of these, the North-Western Provinces, the rate of increase during the interval between the censuses appeared to be ·52 per cent. per annum, and in the other, the Central Provinces, ·33 per cent.

All Indian famines caused by drought.

32. The devastating famines to which the provinces of India have from time to time been liable, are in all cases to be traced directly to the occurrence of seasons of unusual drought, the failure of the customary rain-fall leading to the failure of the food crops on which the subsistence of the population depends. It is desirable, therefore, before proceeding to the discussion of the matters which will constitute the substance of our Report, to indicate what is known as to the rain-fall of the different parts of the country and its variations from year to year, and what prospect there is of rendering such knowledge practically available for the purpose of meeting, or avoiding the consequences of extreme drought to which so many parts of India are subject.

Supposed periodicity of fluctuations in the rain-fall.

33. The fluctuations of the total rain-fall from year to year in all parts of the country are very considerable, variations of as much as 50 per cent. on either side of the average being often registered. An opinion has recently been put forward by persons qualified by their scientific knowledge to judge of such matters, that there is evidence of these fluctuations being in some measure synchronous with those periodical variations in the condition of the sun which are indicated by the varying extent or number of sun spots; and the recurring cycle of about 11 years, with which prolonged observation has shown that the period of sun-spot variation on the average accords, has been thus considered to correspond to the annual variations of the rain-fall, the maximum and minimum of the one approximating in period to those of the other.

Want of sufficient evidence on the subject.

34. These views, however, cannot be said to be in any sufficient degree established, still less to be generally accepted by scientific authorities, or to be of present practical value. They have been contested on various grounds, such as that the evidence is directly opposed to them, that the data are insufficient to establish any such general conclusions, and that the maximum rain-fall in some cases coincides with the minimum sun-spot period and not with the maximum. On the whole it is not possible for us in the present state of knowledge to say more than that the subject is one deserving of careful investigation, and that it does not seem contrary to reasonable expectation that some relation should be established between the variations of the rain-fall from year to year and those of the conditions of the sun's surface, on the heat derived from which, unquestionably, all terrestrial meteorological phenomena closely depend. For various reasons India is a country in which the investigation of this matter may be carried out with especial facilities, and for this reason (though other grounds are not wanting) we would urge that, as the expense of such researches would be small, the measures which have recently been taken by the Government of India to carry them out should be continued, and even extended in the future. Further information on the scientific aspect of this question will be found in the Appendix* to our Report.

*App. No. I.

Distribution of the rain over the year.

35. Although the existence of any true periodical or cyclical variation of the rain-fall is thus left open to doubt, the general phenomena of its distribution during the progress of the year, and over the different parts of the country, are sufficiently well established and understood. A strongly marked yearly periodicity is everywhere

observed, the chief fall occurring, with few exceptions, in the summer months, between May and October, in the season commonly known as the south-west monsoon. On a part of the Madras coast, on the east of the peninsula, heavy rain falls after the cessation of these summer rains, in the months of November and December, at the beginning of what is termed the season of the north-east monsoon. In the more northern provinces, again, a well-marked season of winter rain occurs, commencing about Christmas and extending to February, but its effects hardly reach south of the tropic, and it has no sensible influence on the agriculture of Southern India. The main agricultural operations of the country correspond with these principal seasons of rain, and their relative importance is in a great degree dependent on the local distribution of the rain-fall at the various seasons of the year, as the period and amount of rain differ much in the several provinces of India.

36. The annexed map shows the general features of the distribution of annual rain-fall. The fall on the Western Ghats and on the tract between them and the sea is very heavy, being from 70 to 100 inches at the sea level, and as much as 250 inches on the mountain face exposed to the south-west rain-bearing winds. Along the east coast of the Bay of Bengal, and in the eastern districts of the Bengal Province, as also along the foot and outer slopes of the Himalaya throughout its whole extent, the rain-fall is also extremely heavy, reaching 100 inches or more. Subject to these exceptions it may be said generally that the portion of India east of the 80th meridian has a rain-fall of more than 40 inches, while the portion west of the same meridian has less than 40 inches. The region in which the fall is less than 30 inches includes almost the whole of the Punjab, a considerable part of the North-West Provinces, a large part of Rajputana and Kathiawar, as well as almost the whole of the Deccan and Mysore. In Sindh and in the southern portion of the Punjab and most western part of Rajputana the rain-fall is extremely small and irregular, being less than 15 inches.

37. Of the area in which the rain-fall is below 15 inches it may be said that it is either actual desert, or that agriculture is impossible without artificial irrigation; and hence it has followed that where the rain is least copious the population has made itself in a great degree independent of the local rain-fall. In the opposite direction it is also generally true that where the rain is most abundant, exceeding 40 or 50 inches, the occurrence of such drought as will cause serious scarcity is rare. The region in which the average rain-fall is between 20 and 35 inches is that which suffers most from droughts. Here, though on the average of years the rain is sufficient to support an agricultural population, the greater deficiencies which reduce the quantity below what is essential, as well as the smaller which seriously damage the crops, are so frequent as to lead to repeated seasons of scarcity of greater or less severity.

38. The parts of the country which, from the abundance and certainty of their rain-fall, or from other conditions of climate or their geographical features, are exempt from the risk of drought and consequent famine are: (1) the eastern districts of Bengal and Assam, which enjoy so ample and regular a rain-fall and such abundant river inundation as to ensure the safety of the crops in the driest years; (2) Burmah which, like Eastern Bengal, is never without a rain-fall or inundations more than sufficient for its luxuriant rice crops; (3) the narrow strip of country lying between the Western Ghats and the sea, and the tract immediately eastward of the summits of that range; (4) the upper valley of the Narbada; (5) Sindh, in which, owing to the very small rain-fall, agriculture almost wholly depends on artificial irrigation from the Indus, the supply of water from which never so far fails as to cause a general loss of crop.

39. The tract which is most subject to drought includes (1) the western and southern parts of the North-Western Provinces and that portion of the Punjab territory which lies east of the Satlej; (2) the western and northern States of Rajputana and of the central plateau which border on the North-Western Provinces; (3) the districts of Bombay above the Western Ghats, and the districts of Madras above the Eastern Ghats, together with the southern and western region of Hyderabad and all Mysore, except the strip lying close along the Western Ghats; (4) the districts of Madras along the east coast and at the extremity of the peninsula. The more detailed account of the known droughts of the past hundred years, which we shall give, will show how frequently the region whose total rain-fall is from 20 to 35 inches has been subject to severe scarcity, and that within it have occurred the great famines of 1837–38 in the North-West Provinces, of 1868–69 in Rajputana, and of 1876–77 over nearly the whole of the peninsula of Southern India. These droughts were mainly due to failure of the south-west monsoon. The drought of 1865–66, and some of the local scarcities in Madras, arose from failures of the rain of the north-east monsoon.

A MAP OF INDIA

for the

REPORT OF THE FAMINE COMMISSION

SHEWING THE

Mean annual distribution. OF THE RAIN FALL

IN ENGLISH INCHES.

1879.

Scale: 128 Miles to 1 Inch.

The figures denote heights above the Sea in Feet.

REFERENCES.

Arid Zone less than ..... 15 inches

Dry Zone from ..... 15 to 30

Intermediate Zone from 30 to 70 .....

Moist Zone 70 inches & upwards .....

The figures express the mean annual Rain fall in inches 50

Longitude East of Greenwich

Trelawny Saunders Geogr.

Fredk. Dangerfield, lith. 24, Bedford St. Covent

east coast, a failure which in 1865–66 extended into Western Bengal. The famine of 1873–74 in Northern Bengal was exceptional, and is an instance of a great scarcity suddenly arising in a region of abundant average rain-fall. This drought arose from a premature cessation of the rain, apparently due to an abnormal extension to the eastward of the margin of the comparatively dry area of North-Western India.

Importance of the extension of meteorological knowledge among officials,

40. As at present no power exists of foreseeing the atmospheric changes effective in producing the rain-fall, or of determining beforehand its probable amount in any season, such as would admit of timely precautions being taken against impending drought, the necessity becomes the greater for watching with close attention the daily progress of each season as it passes, for ascertaining with accuracy and promptitude the actual quantity of rain in all parts of the country, and for forming the best and earliest judgment possible from the facts as they occur, whether the supply will be sufficient or otherwise. For the present at least, so far as the rain-fall directly affects the subject under consideration, these are the only precautions that appear possible. Within the last few years a very satisfactory system of meteorological observations has been established all over British India, and in our opinion it is of primary importance that it shall be maintained in complete efficiency, and shall so far be strengthened and improved as to ensure the early and punctual supply of information to the executive governments, and to the officials in all departments concerned with the agriculture of the country or the preparations required to meet famines, as to the actual progress of the periodical seasons of rain in all parts of the provinces for which those governments or officers are respectively responsible. So far as it may become possible, with the advance of knowledge, to form a forecast of the future, such aids should be made use of, though with due caution.

and among all classes in India.

41. We are also satisfied of the importance of the diffusion of more sound and accurate knowledge of the causes and mode of occurrence of the periodical rains, on which the well-being of India is so largely dependent, not only among the officers of the Government, but also among all classes of the community. Any measures which the Government may find possible with a view to the publication and diffusion of such knowledge cannot fail to be highly beneficial.

Famine Relief.

History of past famines, their general characteristics and consequences.—Review of former measures of relief.—General considerations affecting the administration of State relief.—Practical recommendations.—Systematised action and adoption of a code.—Improved statistics.—Creation of an Agricultural Department.—Employment of the able-bodied.—Gratuitous relief.—Village inspection.—Government action in respect to food-supply.—Suspension of land revenue and loans to the landed classes.—Local responsibility for the cost of famine relief.—Miscellaneous suggestions.

Famines of the last century.

42. Regarding the famines that occurred before the British occupation of India not enough is known to enable us even to make out a correct list of the years or the causes of these visitations. Some of those of which we find mention were due to war rather than to drought; in all probability some have been altogether forgotten, since the object of Indian historians was generally rather to record the fortunes of a dynasty than the condition of a people. Even regarding those famines which took place at the end of the last century in territories administered by British officers, the information is too scanty for us now to define the area or the degree of the calamity. The famine of 1770 in Lower Bengal and Behar was extremely severe, and it was officially estimated at the time that a third of the population (or say 10 millions) had died. In 1784 another famine which visited Upper India was probably even more acute, and certainly covered a larger area than that of 1770; but the country was not at that time under British jurisdiction, and very little is known of the facts of the case. In Madras 1781 and 1782 were years of severe scarcity, caused mainly by the devastation of the war with Hyder Ali, but partly also by drought. In 1791 a severe drought afflicted the northern districts of the same Presidency as well as Hyderabad and the southern districts of Bombay, and in 1792 the famine there was intense. It was on this occasion that relief-works were first opened by the Madras Government for the support of the famine-stricken.

Famine of 1802–4.

43. In 1802 there was a failure of rain, severe in the Bombay Presidency and in Hyderabad, partial in the northern districts of Madras; this was followed next year by famine in the former case and by scarcity in the latter. In the same year (1803) a similar failure, but more decided, occurred in the North-Western Provinces, which led to a very serious and widely extended famine in 1804. In Bombay the effects of the drought were greatly enhanced by the ravages of the army of Jaswant Rao Holkar

and the Pindaris in his train. Grain was imported by the Government into Bombay and sold at a fixed price to the public, exportation being prohibited; and public works and hospitals were started for the relief of those who flocked into the towns of Bombay and Surat. In the North-Western Provinces the tract severely afflicted was the country ceded by the Nawab of Oudh in 1801, and known as the Ceded Province, with a population of about 10 millions of people. It comprised the central part of the present North-Western Provinces. The measures taken by the Government of the time to relieve the distress consisted in making large remissions of the revenue, in giving loans and advances to the landowners, and in offering a bounty on all grain imported into Benares, Allahabad, Cawnpore, or Fatehgarh.

Famine of 1807 in Madras.

44. In 1806 there was a widespread failure of rain in the Madras Presidency, especially in the tract known as the Carnatic (which includes the more southern districts lying along the east coast of that Presidency), and in the parts around Madras, though the northern or Deccan districts were less heavily visited; and during the winter of 1806 and the early part of 1807 the distress caused by this drought grew to be very severe. This was the first occasion on which we have distinct evidence of a fact which, as shown by later and more accurate observation, has characterised all subsequent famines in India. Large crowds of emaciated people flocked into the town of Madras, attracted thither by the existence of a charitable association, and by the hope of obtaining gratuitous help without limit. There was a good deal of discussion as to the proper measures to be taken, some authorities advocating the opening of works to give employment to the people close to their homes, others advocating the importation of grain by Government into the interior; but the mortality among the cattle prevented this being done. The Government at the outset declared against any interference with private trade, but in the end they conceived it necessary to purchase, guaranteeing a minimum price to importers; when the famine came to an end through the plentiful rain-fall of 1807, large stocks were left on hand, and had to be disposed of at a loss.

Famines of 1812–13 and 1824–5 in Bombay and Madras.

45. The principle of non-interference with trade declared by Madras was followed by the Government of Bombay in 1812–13 when another drought occurred, entailing famine in Guzerat and the adjoining countries. On this occasion the Governor refused to sanction the prohibition of export, or to import grain on Government account, declaring his belief that unassisted trade, if left to itself, could do more to relieve distress and to effect an equable distribution of supply than Government could do with all its resources. The famine extended to Rajputana, where it is reported to have been very severe, and to the trans-Jumna districts of the North-Western Provinces. In a subsequent scarcity of 1824–5, which, though not very acute, extended over nearly the whole of Bombay and the north part of the Madras Presidency, the same question arose again. Mr. Mountstuart Elphinstone, who was then Governor of Bombay, at first inclined to the policy of offering a bounty on imported grain, or guaranteeing a fixed minimum price to importers; but after some discussion he became convinced that it was wiser to adhere to the general principle of non-interference. In Madras the Government similarly proclaimed their intention of not interfering directly with trade, but offered a bounty on all grain imported from a distance to the distressed locality. On this occasion the drought visited Madras in 1823, Bombay in 1824, and the North-Western Provinces in 1825.

Famine of 1833 in Madras.

46. The Madras Presidency was the seat of the next great famine—that of 1833, though on this occasion the northern districts suffered most, and especially the Gantur district, in which the mortality was so terrible that this was known as the Gantur famine. The total population severely affected was about five millions, and the area about 38,000 square miles. On this occasion the Government appears to have been taken by surprise, and the severity of the calamity was not recognised till too late. Very little was done to relieve distress except by the distribution of gratuitous food in the towns to which the sufferers from starvation flocked. It was estimated that 200,000 persons died in Gantur out of a population of 500,000, and it was many years before the falling-off of the land revenue due to this loss of life was effaced. The adjacent parts of Bombay (that is, the Southern Mahratta country), of Mysore and Hyderabad, also shared in the calamity, though to a less degree. The drought of 1832 in the South was followed by drought in Upper India in 1833, which produced scarcity, but not famine, in the North-Western Provinces.

Famine of 1837–8, North-

47. The year 1837 witnessed the first very severe famine of the century in Upper India. It affected the whole country between Allahabad and Delhi, being most severe between Cawnpore and Agra, and it was also felt in the adjoining Native

and the Pindaris in his train. Grain was imported by the Government into Bombay and sold at a fixed price to the public, exportation being prohibited; and public works and hospitals were started for the relief of those who flocked into the towns of Bombay and Surat. In the North-Western Provinces the tract severely afflicted was the country ceded by the Nawab of Oudh in 1801, and known as the Ceded Province, with a population of about 10 millions of people. It comprised the central part of the present North-Western Provinces. The measures taken by the Government of the time to relieve the distress consisted in making large remissions of the revenue, in giving loans and advances to the landowners, and in offering a bounty on all grain imported into Benares, Allahabad, Cawnpore, or Fatehgarh.

Famine of 1807 in Madras.

44. In 1806 there was a widespread failure of rain in the Madras Presidency, especially in the tract known as the Carnatic (which includes the more southern districts lying along the east coast of that Presidency), and in the parts around Madras, though the northern or Deccan districts were less heavily visited; and during the winter of 1806 and the early part of 1807 the distress caused by this drought grew to be very severe. This was the first occasion on which we have distinct evidence of a fact which, as shown by later and more accurate observation, has characterised all subsequent famines in India. Large crowds of emaciated people flocked into the town of Madras, attracted thither by the existence of a charitable association, and by the hope of obtaining gratuitous help without limit. There was a good deal of discussion as to the proper measures to be taken, some authorities advocating the opening of works to give employment to the people close to their homes, others advocating the importation of grain by Government into the interior; but the mortality among the cattle prevented this being done. The Government at the outset declared against any interference with private trade, but in the end they conceived it necessary to purchase, guaranteeing a minimum price to importers; when the famine came to an end through the plentiful rain-fall of 1807, large stocks were left on hand, and had to be disposed of at a loss.

Famines of 1812–13 and 1824–5 in Bombay and Madras.

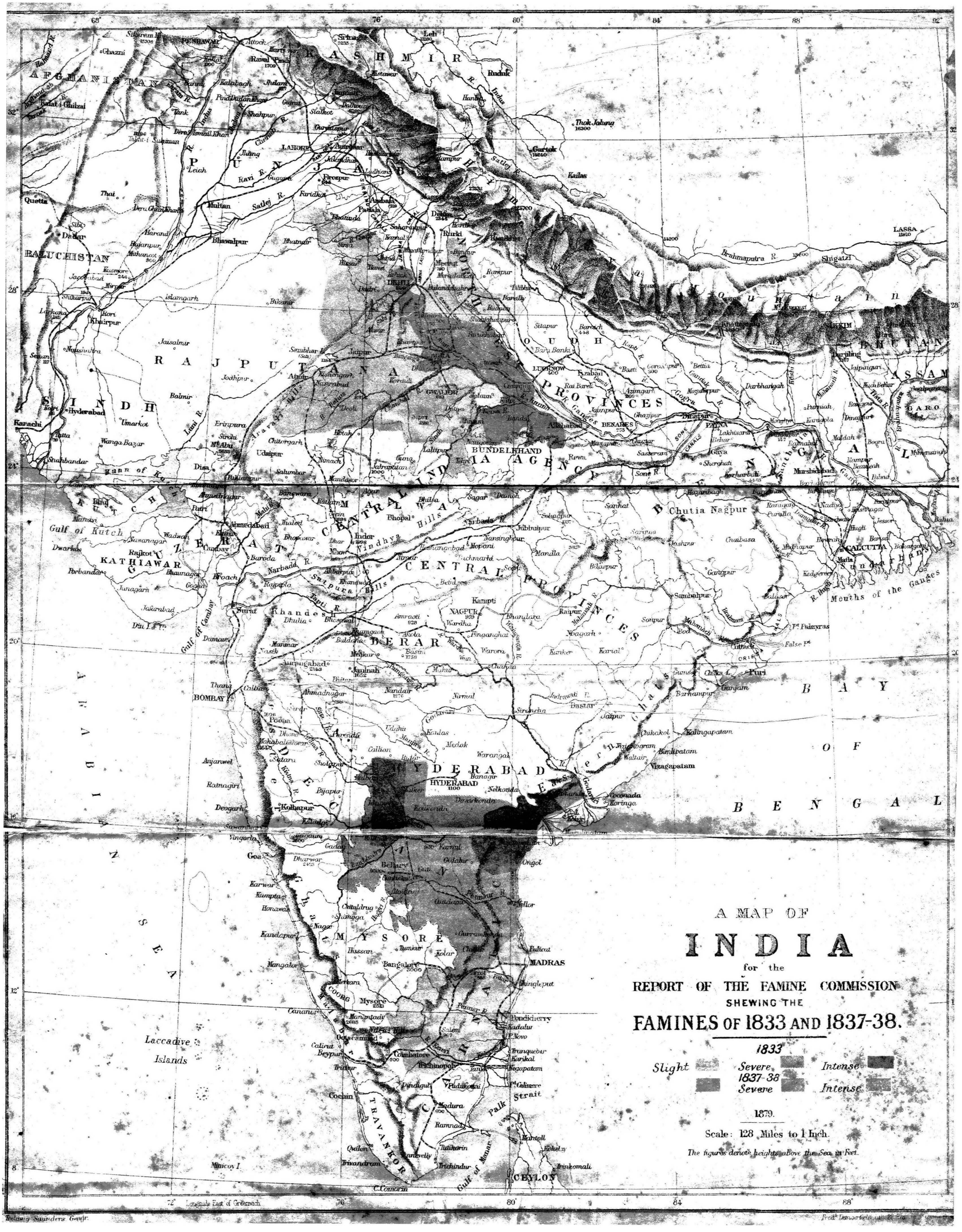
45. The principle of non-interference with trade declared by Madras was followed by the Government of Bombay in 1812–13 when another drought occurred, entailing famine in Guzerat and the adjoining countries. On this occasion the Governor refused to sanction the prohibition of export, or to import grain on Government account, declaring his belief that unassisted trade, if left to itself, could do more to relieve distress and to effect an equable distribution of supply than Government could do with all its resources. The famine extended to Rajputana, where it is reported to have been very severe, and to the trans-Jumna districts of the North-Western Provinces. In a subsequent scarcity of 1824–5, which, though not very acute, extended over nearly the whole of Bombay and the north part of the Madras Presidency, the same question arose again. Mr. Mountstuart Elphinstone, who was then Governor of Bombay, at first inclined to the policy of offering a bounty on imported grain, or guaranteeing a fixed minimum price to importers; but after some discussion he became convinced that it was wiser to adhere to the general principle of non-interference. In Madras the Government similarly proclaimed their intention of not interfering directly with trade, but offered a bounty on all grain imported from a distance to the distressed locality. On this occasion the drought visited Madras in 1823, Bombay in 1824, and the North-Western Provinces in 1825.

Famine of 1833 in Madras.

46. The Madras Presidency was the seat of the next great famine—that of 1833, though on this occasion the northern districts suffered most, and especially the Gantur district, in which the mortality was so terrible that this was known as the Gantur famine. The total population severely affected was about five millions, and the area about 38,000 square miles. On this occasion the Government appears to have been taken by surprise, and the severity of the calamity was not recognised till too late. Very little was done to relieve distress except by the distribution of gratuitous food in the towns to which the sufferers from starvation flocked. It was estimated that 200,000 persons died in Gantur out of a population of 500,000, and it was many years before the falling-off of the land revenue due to this loss of life was effaced. The adjacent parts of Bombay (that is, the Southern Mahratta country), of Mysore and Hyderabad, also shared in the calamity, though to a less degree. The drought of 1832 in the South was followed by drought in Upper India in 1833, which produced scarcity, but not famine, in the North-Western Provinces.

Famine of 1837–8, North-

47. The year 1837 witnessed the first very severe famine of the century in Upper India. It affected the whole country between Allahabad and Delhi, being most severe between Cawnpore and Agra, and it was also felt in the adjoining Native



A MAP OF
INDIA
for the
REPORT OF THE FAMINE COMMISSION
SHEWING THE
FAMINES OF 1833 AND 1837-38.
1833
Slight
Severe
Intense
1837-38
Severe
Intense
1879.
Scale: 128 Miles to 1 Inch.
The figures denote heights above the Sea in Feet.
BAY OF BENGAL
ARABIAN SEA
RAJPUTANA
PUNJAB
SINDH
BALUCHISTAN
KASHMIR
MYSORE
HYDERABAD
CENTRAL PROVINCES
BERAR
MADRAS
BOMBAY
CALCUTTA
CEYLON
Longitude East of Greenwich

relawny Saunders Geogr.

Fredk Dangerfield, lith. 22, Bedford St Covent Gard

States of Rajputana as far west as Jaipur. The area of the famine was about 113,000 square miles, 56,000 of which were in British territory, and the population affected about 28,000,000. The cause of the famine was the almost total failure of the rains of 1836, following after some irregular, though not exceptionally bad, years. The agricultural statistics at this period were very deficient; but the Government early took alarm, and set itself to consider seriously the principles on which relief measures should be administered. The views then adopted were that the main duty of Government was to offer employment to those who could work, but that the relief of the helpless and infirm members of the population was the business of the charitable public. Wherever there was a large demand for employment public works were to be opened at very low rates of pay, but without limit of expenditure; at the same time relief committees were formed, and subscriptions called for to feed those who were unable to work. Where the pressure on these charitable funds was exceptionally great, some assistance was given from the treasury, but not as a matter of right. Remissions and suspensions of revenue were freely granted, the remissions amounting to about Rs. 95,00,000, or nearly half the land revenue demand in the affected tract. But loans and advances were discouraged except for the purposes of permanent improvements or for seed grain, as it was held that they led the people to rely too little on themselves. There was immigration from the Native States, especially to Agra; but it was more than counterpoised by the extensive emigration to Central India. Violent agrarian disturbances and robberies of grain carts and grain stores were so rife that the troops had in several cases to be called out. The statistics of the various measures of relief are very incomplete; but it appears probable that about 100,000 people were employed on relief works for several months at a total cost of about Rs. 20,00,000, and that on charitable relief about Rs. 3,50,000 were spent. The rains of 1838, though so late in coming as to cause renewed anxiety, were abundant when they came, and distress ended with the harvesting of the autumn crop. Prices during this scarcity rose to about three times their ordinary rate, but they seldom stood higher than 20 lbs. of ordinary grain per rupee. They did not, as a rule, reach a height which we should now consider as indicating extreme tension, which may be put at about 16 lbs. or less per rupee. Nothing is known with exactness as to the mortality due to the famine. It was calculated by Colonel Baird Smith, long after, at about 800,000; but this is probably much under the mark. The extremity of suffering endured by the population was such as to leave behind a widespread and lasting recollection of the horrors of the famine; and it was some years before its effects ceased to be legible in the lessened figures of the land revenue.

Western Provinces.

48. In 1854 a famine, severe, though limited in area, visited the northern part of the Madras Presidency; but its intensity was confined to the Bellary district, and the south part of Hyderabad, an area of about 30,000 square miles, with a population of about three millions. The rain-fall of 1852 had been light, and that of 1853 was extremely deficient. The harvest was reckoned at only half an average crop. Relief was administered only by means of public works; but abundant employment was thus given—so much so that crowds of applicants flocked in from the Nizam's dominions, and for about nine months more than 50,000 people obtained relief on these works. The supervision was at first exercised by civil officers, and was very lax; but by degrees it was brought under the charge of an engineer, with special officers under him, and the discipline and out-turn of work improved, while the wage, which had been fixed too high, was cut down to a minimum rate. The total expenditure on the works was about Rs. 12,28,000. When the famine was closed by a plentiful rain-fall in the autumn of 1854 followed by a fair harvest, a valuation was made of the work done, and it was found to be worth about 38 per cent. of the money expended on it. The loss of land revenue and other income amounted to 42 lakhs of rupees, including the decrease in the receipts during the next two years, which was due chiefly to the loss of cattle and the consequent inability of the people to plough the land. It was estimated that in the worst part of Bellary four-fifths of the village cattle had died. Nothing definite is known as to the mortality among the inhabitants; but a census taken in 1856–7, in the imperfect form in use at the time, seemed to show that the usual rate of the growth of the population had received a serious check.

Famine of 1854, Madras.

49. From the close of the famine of 1837–38, the North-Western Provinces and the Punjab entered on a period of good seasons and of agricultural prosperity until the Mutiny of 1857. In that time of disturbance much property was destroyed and much land remained untilled. The seasons of 1858 and 1859 were irregular and unfavourable; and in 1860 the monsoon was so extremely deficient that the autumn harvest was to a great extent lost, and the ground was too hard and dry to sow the

Famine of 1860–61 in North-West Provinces and Rajputana.

winter crops. The winter rains also were entirely wanting. Although the absolute failure of the crops was believed to have been as complete as in 1837, the area of this drought was very limited. It was intense only in the country between Agra and Delhi, inhabited by about 5½ millions of people; and its entire range extended in British territory to 19 millions of people and an area of 48,000 square miles. Some of the adjoining Native States also suffered, especially Alwar; but on the whole the area of distress was surrounded to a remarkable extent by countries enjoying much prosperity; for the crops in Bengal, Benares, Oudh, and the west part of the Punjab were fully up to, and in some cases above, the average. Whether from this cause, or, as it was held at the time, from the increased material prosperity of the country, the sufferings from the famine were far less than those of 1837–38. One result of the smallness of the famine area was an active emigration from the drought-stricken tract, in which it was estimated that half a million people took part. The Government early began to take steps to meet the expected distress. The principles of relief were the same as had been adopted in 1837, viz., that the duty of the State is to provide employment for those who can work, and of the public to support by charitable assistance those who cannot. But both these principles were carried out in a more provident and thorough manner than before. Ten large relief-works, selected as being of permanent utility, were opened, under the supervision of professional officers; the labourers were not paid by the piece, but at a low rate of daily wages, a fixed task of work being demanded in return. Besides these, minor works were opened to provide for the employment of people unable to travel far from their homes, the wages in such cases being given not in cash but in cooked food. Altogether about 12½ lakhs of rupees were expended, and about 35,000 persons employed daily for a period of ten months on these works. Gratuitous relief was mainly carried on at the expense of the charitable public, aided by contributions from other parts of India and from England; it was generally distributed in the form of cooked food to persons who submitted to the condition of residence in an enclosed poor-house. This system was first introduced in Moradabad by Sir John Strachey, who was at that time Collector; it was generally adopted throughout the North-Western Provinces, and was believed by those who administered the relief measures to be not unpopular among the people relieved, the opinions of the native members of relief committees being, according to Colonel Baird Smith, unanimous in favour of it. In some cases applicants were admitted to relief on personal inquiries made by competent committees, but relief at their homes was as a rule only given to those women of respectable position by whom appearance in public would be felt as an intolerable degradation. About 80,000 persons were relieved daily for nine months, by these means, at the cost of about 14 lakhs of rupees. The distress was ended in November 1861 by the autumn harvest, which was a good one. This was the first occasion on which a famine formed the subject of a special inquiry; for during its progress Colonel Baird Smith was deputed to examine into and report on the causes, area, and intensity of the famine, the economic facts it disclosed, and the best measures to be adopted for its relief.

Famine of 1866–67, Madras.

50. The drought of 1865 was felt along the whole eastern coast of India from Madras upwards; and it extended to some distance inland, visiting Mysore, the districts of Madras above the Eastern Ghats, Hyderabad, the hill country in the south-west of Bengal, and Behar; but it was most intense along the coast in the districts of Ganjam and Orissa. The area severely affected in Madras was about 43,000 square miles, with a population of about six millions. The Madras Government and its officers had now become familiar with the warnings of famine and the steps necessary to meet it, and were prepared to start the usual machinery of relief-works, relief-houses, and public subscriptions. But the distress was not at all pronounced, and in all probability would have passed off with little notice had not the rain-fall of the following year also, 1866, been so late as to cause general alarm and excitement, and so insufficient as to produce a very inferior crop. It was not till June or July that the need of relief became pressing, and works were then opened in considerable numbers, under civil officers. Prices rose to an extraordinary height, 10 and 12 lbs. per rupee for rice being not uncommon, while coarse millets sold at 12 to 15 lbs. per rupee; and the sufferings of the people in Ganjam and Bellary were severe. Still, in spite of unusually high wages and the absence of task-work, the numbers employed on relief-works never were large and averaged only 12,000 daily for 15 months. Gratuitous relief was given to 31,000 persons daily for 16 months, mainly in the form of cooked food and in relief-houses, managed to a large extent on the system introduced by Sir John Strachey and made

A MAP OF INDIA

for the

REPORT OF THE FAMINE COMMISSION

SHEWING THE

FAMINES OF 1865-66 AND 1868-69.

1865-66

Slight — Severe — Intense

1868-69

Slight — Severe — Intense

1879.

Scale: 128 Miles to 1 Inch.

The figures denote heights above the Sea in Feet.

Longitude East of Greenwich

Ireland Saunders. Geogr.

Fred.k Dangerfield. lith. 22, Bedford St. Covent Garden

known by Colonel Baird Smith's report. In Ganjam alone was there evinced any extreme dislike to this form of relief, and there only by the ryots and more respectable classes, to whom uncooked food was accordingly given. The prolongation of distress, due to the second failure of rain, caused the relief operations to last on till the next monsoon set in, in June 1867; the entire expenditure amounted to about 12 lakhs of rupees, of which two were contributed by the public and the rest fell on the Government. Not much is known as to the mortality; but the prolonged duration of high prices must have told severely on the population; and there are indications that the number of deaths in the last six months of 1866 increased by about 450,000, or was double the usual average.

Orissa.

51. This drought fell with far greater intensity on Orissa in Bengal, where, as no such calamity had occurred in the whole province for nearly a century, it had to be dealt with by a body of officials necessarily ignorant of the signs of its approach, unprepared to expect it, and inexperienced in the administration of relief measures; nor were the native inhabitants of Orissa in any respect more aware of what was coming on them than the British officers. The area most affected was about 12,000 square miles with a population of about four millions. The rain-fall of 1865 was scanty and ceased prematurely, so that the out-turn of the great crop of winter rice, on which the country mainly depends, was reckoned at less than a third of the average crop. Food stocks were low, both because export had been unusually brisk of late, and because the people had not been taught by precarious seasons to protect themselves by retaining sufficient stores at home. When the harvest failed, so totally new to them was the situation that no one realised its meaning and its probable results. The Local Government and officials not taking alarm and misconceiving the gravity of the occasion abstained from making special inquiries; prices long remained so moderate that they offered no temptation to importers, and forced no reduction in consumption on the inhabitants, till suddenly the province was found to be almost bare of food. It was only in May 1866 that it was discovered that the markets were so empty that the jail prisoners and the Government establishments could not be supplied. But the southern monsoon had now begun and importation by sea or land became nearly impossible. Orissa was at that time almost isolated from the rest of India; the only road, leading to Calcutta across a country intersected by large rivers and liable to inundation, was unmetalled and unbridged, and there was very little communication by sea, for what trade there was had hitherto been a purely export trade, carried on in the months of fine weather. No relief could be obtained from the south, where lay the district of Ganjam, itself severely distressed. By great exertions and at enormous cost the Government threw in about 10,000 tons of food grain by the end of November, and this was given away gratuitously, or sold at low rates, or distributed in wages to the starving population, saving no doubt many thousands of lives. But meanwhile the mortality among those whom this relief did not reach, or reached too late, had been very great; and it was estimated that about a third of the population, or nearly a million persons, had died. Nor did the troubles of Orissa cease with 1866. The rain-fall of the year was so heavy as to cause great floods in the River Mahanadi; and while the harvests in all the higher lands were excellent, in all the low lands the inundations drowned the crop. In the ensuing year, 1867, after a brief respite during which hopes were entertained, which were not to be realised, that the distress had come to a close, the work of relief had to be taken up again. Then, as an apparent result of the reaction following the want of foresight and activity in affording help in the preceding year, the relief operations were marked by a profusion and absence of check hitherto unexampled. Altogether about 40,000 tons of rice were imported, of which even the lavish use made of it could not dispose of half; and, while it cost four times the usual price, the residue had to be sold for almost nothing when the monsoon of 1867, followed by an unusually fine harvest, had altogether put an end to the famine in 1868. The total amount of money expended in Orissa was about Rs. 1,45,00,000, so that in this famine the relief seems to have been at once less efficient and more costly than that given on any previous occasion.

Behar.

52. The drought of 1865 was not confined to Orissa, but extended also to Behar and Northern Bengal, where, for a time, in 1866, there was great suffering; relief-works were opened, and the gratuitous distribution of food, mostly in raw grain, was undertaken. But the system of relief was defective and devoid of uniform organization; the wages given on the works and the amount of food at relief-centres, differed in every district, and the food was seldom given in sufficient quantities for sustenance. About 12,000 persons were employed on relief-works, and about 25,000 received gratuitous

food daily, for the four bad months, June to September. By that time the early autumn crop, which was unusually abundant, was harvested, and famine was at an end. The total expenditure on both the forms of relief was Rs. 2,30,000. There are no records of the mortality among the general population; but the police reported that about 135,000 persons died of starvation and of diseases arising from it.

Famine of 1868–69.

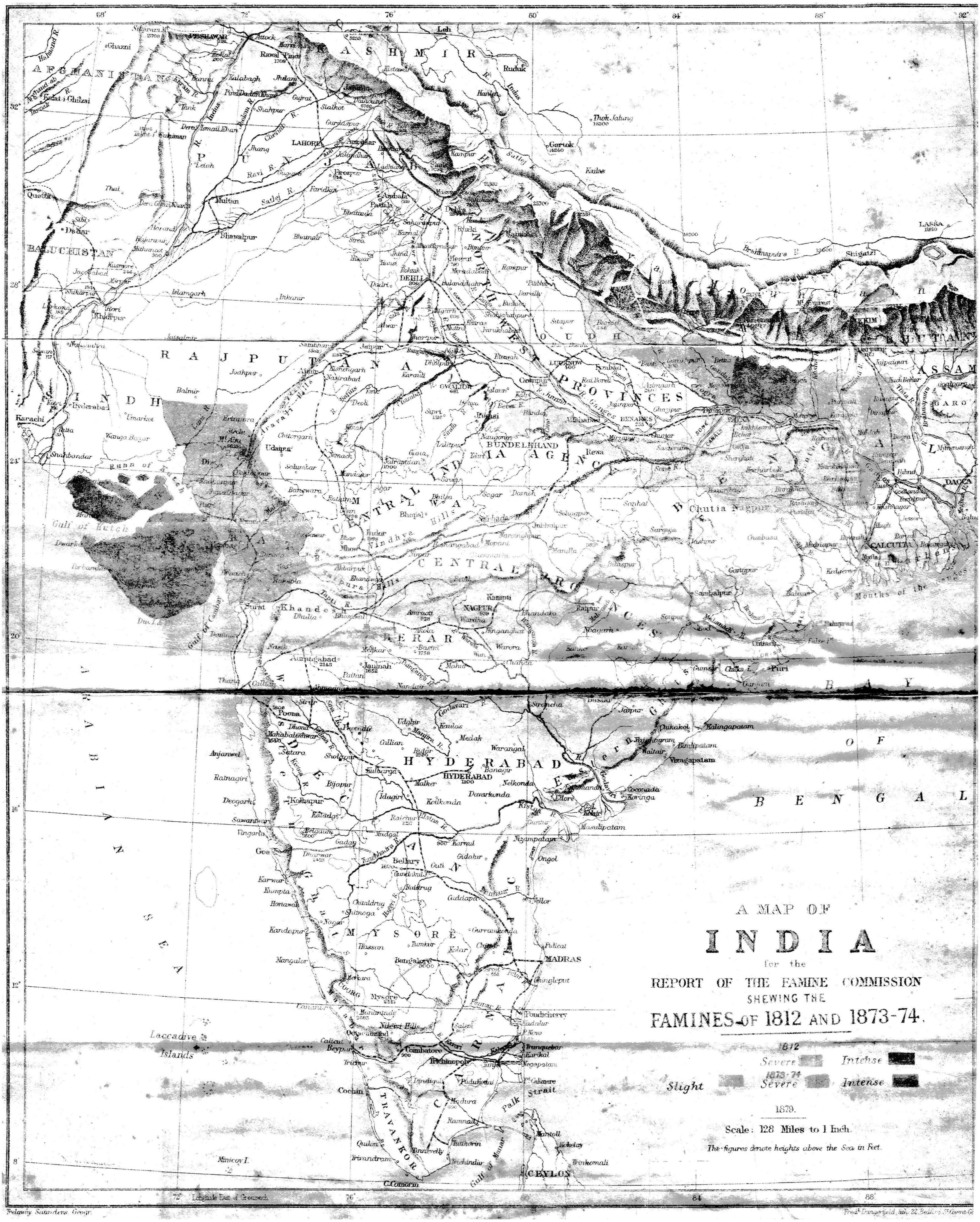
53. Only a year after the abundant monsoon of 1867 put an end to the distress which had prevailed so long in the eastern half of India, the rains failed again over the greater part of Western and North-Western India, and the drought was followed by one of the most widespread and grievous famines on record. The seat of its greatest intensity was in the Native States of Marwar and Bikanir and in Ajmir. It was extremely severe in most of the other Native States of Rajputana and Central India as far east as Rewah, in the Jhansi division of the North-Western Provinces, in a small tract on the northern edge of the Central Provinces, and in the Hissar division of the Punjab; and it visited, though with less virulence, large tracts in the Central Provinces, the whole western half of the North-Western Provinces, the eastern region of the Punjab north of Hissar as far as the Sutlej, and the Guzerat province and north Deccan districts of Bombay. Altogether the area affected by this famine was about 300,000 square miles, and the population of that area was about 45 millions.

Rajputana and Central India.

54. In Rajputana the rains failed so completely that the autumn crop (the chief harvest in those parts) was almost entirely lost, and, what was worse, there was an utter dearth of grass for pasture or fodder, and in some parts of water; so that it was impossible for the cultivators to feed their cattle, or for traders to import grain on bullocks or carts or by any other means than camels. Thus the communications of Rajputana with the adjoining country were as much cut off as those of Orissa in 1866. The only resource open to the people of the Native States was emigration, and they emigrated in enormous numbers, taking their cattle with them,—some southward to Malwa, Guzerat, and Sindh, some northwards to the Punjab and to the Sub-Himalayan forests of the North-Western Provinces and Oudh. It was calculated that out of a million and a half inhabitants of Marwar a million had emigrated in this way. Those who set out on the first warning of calamity generally left their homes in good condition and found room for their cattle to graze; among those who clung to their homes till all their resources were exhausted and then fled, the mortality was very great; they were enfeebled by emaciation before they started, and found all the grazing-grounds occupied by the herds which had preceded them. The area sown with winter crops was small and the crops were poor and blighted. An epidemic of cholera broke out in April and spread in all directions with fatal effect. Little could be done to help the famine-stricken population. Relief-houses were opened in the large towns and the British cantonments, and many of the Chiefs exerted themselves to give employment to the distressed; but they had neither the organization nor the wealth to enable them to do this on any large scale. In Ajmir, a small British district surrounded by the Rajputana States, relief-works were opened at the charge of our Government. But the number of applicants was so great that it was found impossible to exercise proper supervision, and the labourers were paid at piece-work rates. The result of this was that only the skilled and able-bodied were taken on, and those most in need of relief were either refused admission or found themselves unable to earn a living. At last the civil officers had to open minor works to meet the wants of these classes. The rains of 1869 delayed their coming till the middle of July; and then the survivors of the emigrants returned. But just when the fields began to promise a plentiful harvest swarms of locusts visited the country and devoured almost all the produce of the ground; and a violent epidemic of fever carried off many of those who had survived the troubles of the past year. There was, however, abundant grass for the cattle, and a brisk importation of grain set in, which brought down prices. At last a good spring harvest in 1870 put an end to the famine.

North-Western Provinces and Punjab.

55. The drought of 1868 affected nearly the same part of the North-Western Provinces and the Punjab as had been visited in 1860; but it was less severe, except in the Muttra, Agra, Jhansi, and Lalitpur districts of the North-Western Provinces, in the western half of Rohilkhand, and in the Hansi, Hissar, Rohtak, and Karnal districts of the Punjab. Elsewhere there was some return from the autumn harvests, though a poor one; and the winter crop, though sown on a reduced area, was so good that at one time it was thought that the famine would come to an end in February 1869. This hope was frustrated by the indirect effects produced upon the two provinces by the intensity of famine over so great an area



A MAP OF
INDIA
for the
REPORT OF THE FAMINE COMMISSION
SHEWING THE
FAMINES OF 1812 AND 1873-74.
1812
Severe
Intense
1873-74
Slight
Severe
Intense
1879.
Scale: 128 Miles to 1 Inch.
The figures denote heights above the Sea in Feet.
AFGHANISTAN
BALUCHISTAN
KASHMIR
PUNJAB
RAJPUTANA
SINDH
NORTH WEST PROVINCES
OUDH
BENGAL
ASSAM
BHUTAN
CENTRAL INDIA AGENCY
CENTRAL PROVINCES
BERAR
HYDERABAD
MYSORE
TRAVANKOR
CEYLON
ARABIAN SEA
BAY OF BENGAL
Gulf of Kutch
Gulf of Cambay
Mouths of the Ganges
Laccadive Islands
Palk Strait
Gulf of Manar
Longitude East of Greenwich
Trelawny Saunders, Geogr.

as that of Rajputana, which raised prices to an excessive height and drained away the diminished food stocks; while the influx of emigrants from those parts added to the severe strain on the charity of the public. The coming difficulty had been early foreseen by the Governments of both provinces, and relief measures were planned in good time. In their general outline they corresponded with those which had been adopted on previous occasions; but there were certain alterations in the principles laid down. It was now declared for the first time that the object of Government was to save every life, and that district officers would be held responsible that no preventible deaths should occur. It was found necessary to depart, in some degree, from the old principle, that it is the duty of the public to provide for the gratuitous relief of the infirm and weak, seeing that so large a proportion of these were foreigners and not the local poor; and the Government declared that it would supplement private subscriptions by whatever sum might be necessary for the support of persons incapable of work. Relief of this kind was given in the shape of cooked food, conditional on residence in a poorhouse, agreeably to the system of 1861. Relief to the able-bodied was not confined, as in 1861, to large works of permanent utility under professional officers. There were indeed several of these, but there was also a larger number of minor works under civil officers, which, in some cases, in the opinion of those officers, had the effect of attracting people who were not in immediate need of relief. Wages were fixed at a very low rate, and orders were given to discourage piece-work, but to induce the labourers by constant supervision to turn out a fair amount of work. In the North-Western Provinces about 65,000 persons were employed daily for 12 months on works and about 18,000 daily received gratuitous relief; the total cost was about Rs. 46,00,000. The Punjab expenditure on relief-works is not on record, but about 23,000 received gratuitous relief daily for nine months at a cost of Rs. 4,25,000; and about 3 lakhs of rupees of land-revenue were remitted. The vital statistics in these two provinces were at this time very imperfect; but the result given by them indicates an excess mortality of about 1,200,000, due mainly, not to direct starvation but to diseases obscurely connected with drought and famine—cholera, small-pox, and fever.

Central Provinces and Bombay.

56. The north part of the Central Provinces (the northern half of the districts of Saugor Jabalpur and Damoh) was visited by the same drought; and there was a deficient rain-fall in the south-eastern districts (known as the Chatisgarh division) which mainly grow rice. The long duration of high prices and the influx of starving immigrants also caused distress to the poorer classes in most parts of the province. The inhabitants, however, are at once too thinly scattered and generally too well-off and independent to be eager for State relief; and the numbers employed on public works or fed gratuitously were very small. The total expenditure, including advances for seed-grain and plough cattle, amounted to about Rs. 10,00,000. In Bombay the rain-fall of 1868 was very light in Khandesh and Ahmednagar, while great destruction was caused by inundation in Ahmedabad and Kaira; and these difficulties, followed by the general rise of prices and the influx of starvelings from Marwar, caused considerable distress, though hardly amounting to famine. The total expenditure on relief measures was about Rs. 6,30,000.

Behar famine of 1873-74.

57. The monsoon of 1873 was not abnormal during the three months, June, July, and August, but in Northern Bengal it ceased prematurely in September; and much of the winter rice crop, which ripens in November, was consequently lost. The Bengal Government, from inquiries instituted for the purpose, was led to believe that the inevitable effect of this loss would be to involve the inhabitants of a large part of the province in a severe famine; it accordingly set about making preparations with the utmost energy to carry out relief measures on a scale and with a thoroughness which had never been equalled before. The principles adopted by the Government were very different from those accepted on any former similar occasion. It was considered that the operations of private trade could not be relied on, and therefore that it would be necessary to accept the responsibility of providing the distressed districts with the whole quantity of food likely to be required. After elaborate estimates had been framed it was decided, with the approval of the Government of India and the Secretary of State, to import 480,000 tons of rice; and the greater part of this stock was purchased for the Government in Burma, sent up-country by railway, and distributed to depôts scattered over the famine area by the agency of Government officers. The estimates provided against every possible contingency, the failure of contractors, was administered mainly, in the form of employment on the [illegible] Relief

assistance to the infirm; but under rules which in their details were very different from those previously followed. Tests were not to be stringently enforced in localities where the distress was excessive and widespread. In place of the self-acting tests which on previous occasions had been held to be useful and to some extent necessary, reliance was placed on personal knowledge, on the part of the relieving officer, of the applicant's condition and wants. A large special establishment of inspecting officers was appointed, and the country subdivided among them, in the hope that, with the help of the resident zemindars and leading ryots, they might obtain such personal knowledge of the condition of every village and its inhabitants. The intention having been formed of preventing loss of life at any cost, so far as practicable, tests or restrictions were relaxed in respect to the wages, the amount of work done, and the character of the work offered; and sufficient money or grain for their sustenance was allowed to all comers who were primâ facie in want. Cultivators were invited to take loans of money or rice repayable without interest. About 340,000 tons of grain were disposed of in the relief operations, a quantity sufficient to provide sustenance for not less than three millions of people for seven months. The famine area was estimated at 40,000 square miles, and the population affected at 17 millions. Of these 735,000 were employed on works for nine months, 450,000 received gratuitous relief daily for six months, and 3,200,000 bought grain at low rates enough to support them for seven months, or received advances of grain or cash, large part of which was repaid to the Government. When all pressure had passed away the surplus stock of grain left on the hands of the Government amounted to more than 100,000 tons, the provision of a reserve having been designedly made when the original purchase was effected. This had to be sold at a great loss, adding not a little to the total cost of the relief measures, which reached six and a half million sterling, or as much as the total expenditure on all past famines in all parts of India from the beginning of the century up to that time. The result of inquiries specially made on the subject was to indicate that no mortality whatever was due to the famine, and that the bountiful relief given did not have the effect of rendering the population indisposed to return to their usual labours when it ceased.

North-Western Provinces and Oudh.

58. The failure of rain in 1873 extended also to the strip of country on the northern edge of the North-Western Provinces and Oudh which corresponds in position with the most distressed tract in North Behar; and the loss of the rice crop was almost complete. It was thought necessary to take some measures for the relief of distress on the same system as that followed in 1868–69. In the Gorakhpur and Basti districts, where works were opened in February or March 1874, although the wages were low, the discipline was lax and the task slight, and the numbers employed rapidly rose to more than 200,000. On this becoming apparent, the wage was reduced till it provided only a bare subsistence, stricter discipline and supervision were introduced, and the labourers were no longer allowed to go to their homes at night. Shortly after this the rains set in, and owing to these combined causes the great crowds melted away more rapidly than they had collected, and it was found that there was hardly anyone who really needed relief.

Scarcity of 1875–76.

59. The alarm raised in 1875 of a threatened scarcity in Behar hardly deserves mention here, except as an illustration of the risk of over-estimating the effect of a failure of the rain-fall where the means of obtaining sound knowledge of the condition of the country do not exist, and profuse expenditure has once been permitted. The rains ceased prematurely, much as they had done in 1873, and anticipations were expressed of a famine which should affect 17 millions of people, and be severe in an area inhabited by 8 millions; and large proposals were made as to measures of relief involving very heavy outlay. The Government of India, however, resisted what seemed to be a premature alarm on the part of the Bengal Government, and further inquiries gradually narrowed the area of expected distress till nothing remained of it. Eventually prices ruled lower than in ordinary years in the very tract where severe famine had been prognosticated.

Famine of 1876–78.

60. The great famine in Southern India, which has so recently come to an end, has been, in respect of the area and population affected and the duration and intensity of the distress, the most grievous calamity of its kind experienced in British India since the beginning of the century. The failure of the summer rains of 1876 extended over about half of the Madras Presidency, the distress being most intense in the same tract, that lying above the Eastern Ghats, which suffered in 1833 and in 1854. The scarcity was felt with great severity over the whole of Mysore (except the hilly tracts that lie along the western Ghats), the southern half of the Hyderabad State, and all the Deccan districts of the Bombay Presidency. The area thus affected was about 200,000 square

A MAP OF
INDIA
for the
REPORT OF THE FAMINE COMMISSION
SHEWING THE
FAMINE OF 1876-78.

Slight *Severe* *Intense*

1879.

Scale: 128 Miles to 1 Inch.

The figures denote heights above the Sea in Feet.

72° Longitude East of Greenwich 76° 80° 84° 88°

Trelawny Saunders, Geogr.

Fred.k Dangerfield, lith. 22, Bedford St. Covent

miles containing a population of 36 millions.* But this great famine was not wholly restricted as to extent and duration to the effects of the drought of 1876. The monsoon of 1877 was a most irregular one. In the Southern Provinces it began late and feebly, but ended with an excessive downpour, which did great injury to the crops. In part of the Central Provinces, in the North-Western Provinces, and in part of the Punjab, the registered rain-fall was less than any ever before recorded. The autumn crops were almost entirely withered up, and the possibility of sowing the winter crops was only just secured by an extraordinary fall of rain in October, which occurred when almost all hope had gone. The calamitous season of 1877 was accompanied by an extremely high range of prices over all India, due partly to the deficient harvest, and partly to the reduction of the food stocks through export from the Northern Provinces to the south and to Europe. These two causes together prolonged the distress in Madras, Mysore, and part of Bombay over a second year, and created great suffering among the poorer classes in the Upper Provinces. The years of famine were also exceptionally marked by a great mortality, partly attributable to virulent outbreaks of cholera, small-pox, and fever. Thus, though the whole area affected by the famine of 1868 exceeded that of 1876–78, the area of great intensity was larger and the duration of excessive pressure was longer in 1876–78.

Policy of famine relief.

61. In the earliest stage of the famine a difference of opinion arose between the Supreme Government and the Governments of Bombay and Madras regarding the character of the relief works to be set on foot. The local Governments advocated large works of permanent utility, while the Supreme Government upheld the system of opening small and scattered works which should not involve the Administration in a large expenditure if the anticipated famine should not turn out very severe. These objections were, however, withdrawn as soon as the gravity of the impending calamity was realised, and at the same time, in January 1877, Sir R. Temple (selected on account of his experience in Behar in 1874) was sent as famine delegate of the Government of India to inspect the distressed districts, and to communicate personally with the two Governments concerning the measures to be taken for the relief of distress. The instructions given him are of importance as showing the opinions of the Government regarding the nature of their responsibility for the relief of famine. The principle was re-affirmed that the Government would spare no efforts "to save "the population of the distressed districts from starvation, or from an extremity "of suffering dangerous to life," but they would not "attempt the task of preventing "all suffering and of giving general relief to the poorer classes of the community." "Every one," it was said, "admits the evils of indiscriminate private charity, but the indiscriminate charity of a Government is far worse." The Government held that "the task of saving life, irrespective of the cost, is one which it is beyond their power to undertake," but believed that "from the history of past famines, rules of action "may be learnt which will enable them in the future to provide efficient assistance "for the suffering people without incurring disastrous expenditure." The Secretary of State approved these instructions, adding that "in the interests of the distressed "population itself, as well of the taxpayers generally, the Government of India was "bound to adopt precautions against indolence or imposition, similar, as far as the "circumstances of India will permit, to those with which in this country it has "always been found necessary to protect the distribution of public relief from abuse."

Bombay.

62. Although the Bombay Presidency has had no serious famine since 1812, it has frequently been visited by local scarcities, and the generally precarious rain-fall of the Deccan upland has accustomed its officers to the prospect of famine and the question of relief. The Bombay Government had before them the records of the Behar famine of 1873–74, and were ready, when the monsoon failed signally in 1876, with a systematic plan of action. They resolved to relieve the distress almost entirely by large public works, and they at once selected several such undertakings of permanent utility to be set in hand. Following the policy approved by Colonel Baird Smith in 1861, they placed these works under the control of professional engineers, rejected the mode of payment by piece-work, fixed the daily wage at a rate just sufficient to support the labourer, and relied on supervision and discipline

	Area.	Population.
* Madras	83,800	19,100,000
Bombay	64,000	10,000,000
Mysore	27,100	5,100,000
Hyderabad	30,700	1,900,000
Total	205,600	36,400,000

to get as much useful work done as possible, and they explicitly declared that relief should not be made attractive, but should be so arranged as to secure to all a quantity of food just sufficient for a bare subsistence, with a slight margin over. When the labourers on relief-work struck against the wage and left in large numbers, the Government refused to yield to what they considered unreasonable demands, ordering the district officers to watch over the condition of the men on strike, and to see that they did not linger in their villages so long as to become emaciated. There was no direct interference of the Government in the supply of grain, except on a very small scale in exceptional circumstances. The numbers employed for 13 months on these works were 285,000, and the cost was 93 lakhs of rupees. There was no novelty in the management of gratuitous relief, which was organised in the villages as the pressure arose, the only point to notice being that it was considered unadvisable to distribute it to people at their homes, except when bedridden or unable to leave the house. All others had to submit to the test of coming to relief centres to procure it. The cost of gratuitous relief was 10 lakhs of rupees, and the number relieved daily for 13 months was 83,300. Altogether the cost of the famine administration up to the end of 1877 was Rs. 1,14,00,000. Since that time there has been an unexpected prolongation of distress, the bad season of 1877, followed by a plague of rats, preventing the people from recovering as quickly as had been hoped from the depressed condition into which they had fallen; and the expenditure on relief in 1878 and 1879 was about 14 lakhs of rupees. Two and a quarter lakhs of land revenue were remitted, and about 30 lakhs suspended, of which about 14 were still outstanding at the end of 1879; and it is probable that a considerable portion of this sum will have to be ultimately remitted. The deaths of the two years 1877 and 1878 are estimated for the whole Presidency, excluding Sindh, to have been 800,000 in excess of the usual number. The population of the districts affected by the famine was rather larger than that of the non-affected districts; and in 1878 the mortality in the famine and the non-famine districts was nearly equal. The heaviest death-rate occurred in those districts to which there was no direct access by railway or water, being in the case of Kala'gi as high as 102 per mille for the year 1877.

63. In Mysore the rain-fall of 1875 had been very deficient, and the food-stocks of the country were largely depleted before the catastrophe of 1876 fell upon it. The failure of the harvest of 1876 was extremely serious, not more than a third of an average crop being gathered over the whole province, and less than a quarter in the most afflicted parts. This indicated a great deficiency in the food-supply, which could only be met by ample importation. It was evident that the purchasing power of the people would be subjected to a severe strain, and that what was most required was the means of earning wages on large and well-arranged relief-works. The local administration was not blind to the danger, nor slow in setting on foot what were conceived to be sufficient measures of relief; but the arrangements made fell short of the real requirements of the case. Proposals to carry out large works were at first discouraged by the Government of India, and no such undertakings were put in hand till the time for them had almost passed away. No alteration was made at the outset in the ordinary method of carrying out works under the Public Works Department, so that, although some fresh works were opened they were not adapted for any but able-bodied labourers, and the numbers thus relieved were but slightly in excess of those ordinarily employed. All other persons needing relief were considered to be in charge of the civil officer, who was expected to employ them on minor local works, such as were ordinarily carried on under civil officers, as close as possible to their homes. From various causes these works fell into great confusion, and afforded no real support to the people, who gradually drifted into a state of emaciation in which they were only fit for gratuitous relief. Nor was the administration of this form of relief effectual. Cooked food was given liberally at certain centres to all-comers, no conditions of residence being imposed, and too little provision was made for medical assistance. When the rains of 1877 again threatened to fail, and held off during July and August, the crowds at the relief centres and the mortality became very great. It was in these circumstances at the beginning of September that the Viceroy visited Bangalore, and directed the adoption of a system of relief based on that followed in Bombay. The labourers were to be concentrated on large works, and the relief establishment was greatly augmented. A fortunate change of weather prevented the effects of these orders being practically tested. Rain began to fall, and the numbers on relief diminished at once with great rapidity. By the time the monsoon of 1878 set in the need of famine relief was at an end. But it will be some time before the province recovers its losses, which have been estimated at about a million of lives a quarter of a million of cattle, and crops the value of which would have been

9¾ millions sterling. The number relieved on works and gratuitously was about 150,000 for the 11 worst months, and the total expenditure incurred was about 70 lakhs of rupees, besides remissions of land revenue which amounted to 28 lakhs of rupees. No direct importations of grain were made by the Government, the supply needed for the local gratuitous relief being purchased locally.

64. The Government of Madras has not yet sent in any report on the famine in that Presidency, and we have not had the same facilities as in the cases of Bombay and Mysore in our attempt to trace the history of the distress and the measures of relief in detail. The first peculiarity in the management of the Madras famine was that, following the example of Behar in 1873, the Local Government at an early period in the famine thought it necessary to provide against deficient activity of private trade, or the failure of the supply of food in the less accessible districts, by purchasing 30,000 tons of rice to be stored in places where the demand for relief was expected to be large; and at the same time they proposed to put in hand several large works of permanent utility. The Government of India disapproved of both these steps, and decided, as already described, that at this stage of the distress minor local works which would not take the people far from their homes should be organised. The purchased grain was partly used for purposes of relief, and the remainder was sold at the close of the famine. A few large works were opened under the Public Works Department, for the employment of the famine-stricken at an early period, and others were started in the middle of 1877, but the greater part of the applicants were received on works under the supervision of the civil officers of the district. The scale of wage was fixed in accordance with, but somewhat below, the rates which had been adopted in Behar. The numbers on relief soon became very large, and by January 1877 had risen to over a million. In that month, when Sir R. Temple visited the famine districts, he was of opinion that relief was given both on too liberal a scale and to persons who did not stand in absolute need of it. He advised the Government of Madras to reduce the rate of wages, and they adopted the scale which was being introduced into Bombay, the amount of the money wage being made to vary with the price of food grain. After these changes, and on the introduction of stricter discipline, the numbers on works were at first considerably reduced; but they began to rise again shortly, those on gratuitous relief rising at a still higher rate, so that the total exceeded a million in May, and reached the maximum figure of 2,218,000 in September. The effect of the reduced wage was a subject of considerable discussion and difference of opinion, and it was strongly opposed by many of the officials, including the Sanitary Commissioner, as providing less than subsistence for the labourer. After the orders for its adoption had been in force for three months, the balance of opinion being unfavourable, it was abandoned, and a higher rate substituted at the end of May. At the same time it was decided that all weakly persons, and all who were incapable of performing 50 per cent. of a full task for a man in normal condition, should be removed from the relief works and supported at their homes; and a system of house-to-house relief was introduced, under which a dole of money was given sufficient for the support of the pauper. The test of fitness was the certificate of the head village official, submitted to the village inspector, whose proceedings again were under the control of the relief officer of the Taluk, so that opportunities for abuse might be minimised. In the end of August, when it became apparent that relief operations would have to be continued at least till the end of the year on a very large scale, the Viceroy visited Madras, and after consultation with the Governor of that Presidency certain important changes of system were resolved upon, while the main principles on which relief was to be administered were repeated with additional emphasis. It was announced that "a large scheme of useful public works under departmental supervision should be the backbone of the relief system," and a great expansion of such works was ordered, combined with the restriction of gratuitous relief in their villages to "those who are both incapable of work and without other adequate means of support." The direction of all matters connected with the famine, which had hitherto passed through the channel of the Board of Revenue and the Council, was taken by the Governor under his sole charge, who issued his orders directly to the district officers; and a large additional staff of officers was introduced from Northern India to strengthen the supervising agency. These arrangements were hardly complete when, as in Mysore, the long-expected rain began to fall abundantly; the hearts of the people revived, and they dispersed so rapidly that the numbers, which in September had been 2,218,000, had fallen in December to 444,000, and in March 1878 to 215,000. A considerable body of debilitated persons remained, however, on the hands of Government till the harvest of 1878 was ripe, in October or November. The abnormal mortality of the two famine years has been estimated at two millions, and there was

Madras.

a decrease of 800,000 in the births of the two years 1877 and 1878; nor did the effects of this decrease come to an end in the latter year. The average number of persons relieved was 787,000 daily for the space of 22 months; and the total cost of the famine is estimated at eight millions sterling. The land revenue remitted was about 118 lakhs of rupees, and the outlay on relief about 675 lakhs.

The English charity.

65. Towards the close of 1877 charitable contributions began to flow in from the public in Great Britain and the Colonies, amounting in all to the sum of 678,512*l.*, and were of great service in relieving the distress of those not absolutely suffering from starvation or receiving relief from Government. One quarter of the sum received was allotted to Mysore, and three-quarters to the Madras Presidency. In distributing the grants, about two thirds of which went to agriculturists and one third to non-agriculturists, the object kept generally in view was to give to the recipients the means of repurchasing the implements of their trade or profession, and of starting again in their former self-supporting mode of life.

Hyderabad.

66. In the Hyderabad State the famine was intense in the tongue of land which runs in between the Sholapur and Bellary districts of Bombay and Madras, and it was severe in the whole southern half of the country. Relief was given as far as possible on the pattern of the British administration by opening public works and centres where cooked food was distributed. About 20,000 persons were employed and 10,000 fed daily for 10 months, at a total cost of nearly 11½ lakhs of rupees; 32 lakhs of land-revenue were remitted.

The North-Western Provinces.

67. In the North-Western Provinces and Oudh the failure of rain in 1877 was more complete than any previously recorded, and the autumn crop was almost entirely lost (except on irrigated lands) in all but the eastern and southern districts of the province. Rain, however, in October, enabled the winter crop to be sown over a very large area, and though the continuous rainy and cloudy weather in January and February injured it, yet the out-turn was on the whole an average one. The province was thus preserved from what would otherwise have been an intense famine. Arrangements for relief by works and in poor-houses were made early in September 1877, but the rain-fall of October and the briskness of field labour prevented many from coming to the works till December, when the winter rains put an end to the need of artificial irrigation, and thus threw out of work hundreds of thousands of people employed upon it. Large numbers then flocked to the relief-works under the pressure of high prices. The spring harvest again offered employment in March 1878, and the people left the relief-works in large crowds, to return again in May, and to increase in numbers and despondency as the rains again showed signs of holding off in June and July. In August, however, there was a plentiful downfall which secured the harvest; the people rapidly dispersed to their homes and by the end of October relief was almost everywhere at an end. The total cost was about 20 lakhs of rupees: the average daily number on relief-works for 12 months was 55,700, in poor-houses 13,750. The highest number on relief-works was in August, 126,800, and in the same month the number in the poor-houses also reached its maximum of 26,350.

The history of this famine brings out some points of interest. The relief-works were for the first time placed more entirely under the officers of the Public Works Department, with little control from the local civil officers, and the effect of this was not good. Gratuitous relief was administered exclusively on the principle of giving cooked food in a poor-house at which residence was required, and this was found to be very unpopular, and some of the persons who accepted this form of relief were put out of caste. No system of village inspection was adopted, the distress not having been regarded as of such a nature as to require it. About a quarter of the land revenue (or 46 lakhs of rupees) was suspended at the end of 1877, but when the spring harvest turned out a good one the Government ordered arrears to be got in as far as possible, and by the time the autumn crop was ripe the collections were deficient by about 12 lakhs only. Lastly, the mortality in the province was extremely great, amounting to very nearly double the average, in the 14 months from November 1877 to December 1878, or to an excess number of about 1,250,000 deaths. Small-pox, fever, and bowel diseases were the chief registered causes, and these epidemics were extremely virulent, but doubtless a large portion of the deaths was due to the pressure of want. At the same time, it is important to record that the amount of ordinary grain procurable for a rupee never fell much below 26 lbs.

The Punjab.

68. The failure of the monsoon of 1877 was very complete in the Punjab; but the autumn crop is less important there than in any other part of India, and the rain of October made it possible to sow the usual area with spring crops. Moreover, the preceding years had been very prosperous, and the export of wheat, which had greatly

increased in the years 1876 and 1877, brought large sums of money to the province. The scarcity, however, became serious in some places through the height to which prices had risen in consequence of the famine of the south, and by reason of the influx of starving people from Kashmir. The parts which suffered most from the drought were those districts of the Delhi and Hissar divisions not protected by the Western Jumna canal, which are always among the first affected, and the hill district of Hazara, which had not been known to suffer in any earlier famine. The distress was, however, nowhere intense; the ordinary measures were taken to supply relief, and with the rains of 1878 all fear of famine passed away. The mortuary returns, however, which indicate an excess mortality of about 340,000 above the average during the year 1878, afford reason for fearing that the high prices had a grievous effect on the poorer classes of the population.

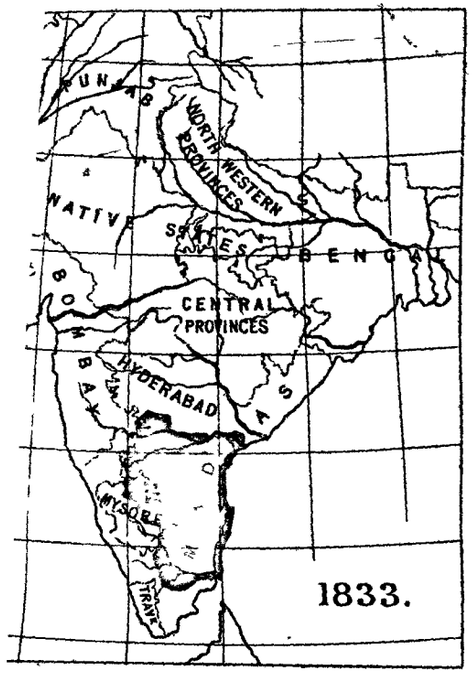
69. The following table shows in chronological order the years in which the principal droughts since 1769 have occurred, and the provinces affected by consequent scarcity :— Chronological list of famines.

Year.	Area of Drought.	Area of Famine or Scarcity.
1769	Drought in Bengal.	
1770	- - - - -	Famine in Bengal.
1782	Drought in Bombay and Madras.	
1783	Drought in Upper India - - -	Famine in Madras and scarcity in Bombay.
1784	- - - - -	Famine in Upper India from the Karamnasa to the Satlej.
1791	Drought in Bombay, Hyderabad, and Madras.	
1792	- - - - -	Scarcity in north part of Madras. Intense famine in Hyderabad and Southern Mahratta country. Severe famine in Deccan, Guzerat, and Marwar.
1802	Drought in South Hyderabad, and in Deccan.	
1803	Drought in Ceded Province of North-Western Provinces and in Central India.	Famine in Deccan and Hyderabad.
1804	- - - - -	Famine in North-Western Provinces, and scarcity in Central India and Rajputana.
1806	Drought in Central Districts of Madras, from Trichinopoly to Nellore.	
1807	- - - -	Famine in Central Districts of Madras.
1812	Drought in Guzerat, Kutch, and Kathiawar, and to some extent in Madras ; also in Rajputana and Central India.	
1813	- - - - -	Famine in Kutch and Kathiawar ; intense in parts of Rajputana. Scarcity in parts of North-Western Provinces and of Madras.
1823	Drought in Madras.	
1824	Drought in Bombay - - - -	Famine in Madras, chiefly in the north.
1825	- - - - -	Scarcity in Bombay, chiefly in Guzerat and the Northern Deccan.
1832	Drought in Northern districts of Madras, except Ganjam, in the south of Hyderabad, and the Southern Mahratta districts of Bombay.	
1833	Drought in north part of Bombay, in Rajputana, and parts of Punjab and North-Western Provinces.	Famine in Northern districts of Madras ; intense in Gantur. Scarcity in Hyderabad and Southern Mahratta districts.
1834	- - - - -	Scarcity in North Deccan and Guzerat, in Rajputana, the Hissar division of Punjab, and the trans-Jumna districts of North-Western Provinces.
1837	Drought in North-Western Provinces, Eastern States of Rajputana, and south-east part of Punjab.	

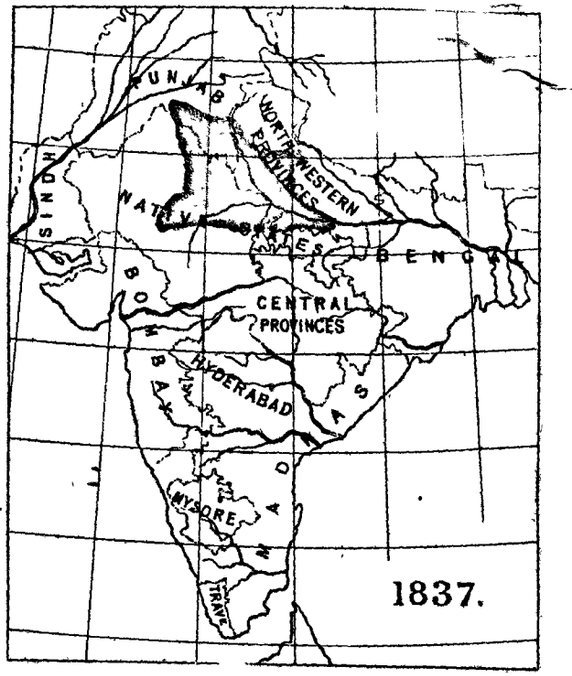
Year.	Area of Drought.	Area of Famine or Scarcity.
1838	Drought in Guzerat, Kutch, and Kathiawar -	Intense famine in Central Doab and trans-Jumna districts of North-Western Provinces, and in Delhi and Hissar divisions of Punjab.
1839	- - - - -	Scarcity in Guzerat, Kutch, and Kathiawar.
1844	Scanty rain-fall in Deccan.	
1845	- - - - -	Scarcity in Deccan.
1853	Drought in Ceded districts of Madras, in South Hyderabad, and Sholapur and Kaladgi districts of Bombay.	
1854	- - - - -	Famine in Bellary. Scarcity in adjoining parts of Madras, Hyderabad, and Bombay.
1860	Drought in part of North-Western Provinces and Punjab, and neighbouring States of Rajputana.	
1861	- - - - -	Famine in Upper Doab of North-Western Provinces, in Delhi and Hissar divisions of Punjab, and in adjoining parts of Rajputana. Scarcity in Kutch.
1865	Drought in northern part of Madras, in South Hyderabad and north part of Mysore; in South Mahratta districts of Bombay, in Orissa and Behar, and all Western Bengal.	
1866	- - - - -	Famine in Ganjam and Bellary districts of Madras, in Orissa (intense), and in Behar. Scarcity in all adjacent parts of Madras, Mysore, Hyderabad, and Bombay, and in Central and Western Bengal.
1868	Drought in Rajputana, trans-Jumna districts of North-Western Provinces, north and south-east districts of Central Provinces, and in Punjab from Jumna to Indus.	
1869	- - - - -	Famine in Western Rajputana (intense), in trans-Jumna districts of Allahabad and Delhi, and Hissar divisions of Punjab. Scarcity in adjacent parts of North-Western Provinces and Punjab, in Guzerat, Kutch, and North Deccan, and in the north and south-east districts of Central Provinces.
1873	Drought in North Behar and a part of North-Western Provinces and Oudh.	
1874	- - - - -	Famine in Behar and scarcity in the strip of North-Western Provinces and Oudh adjacent.
1876	Drought in all Madras and Deccan, Mysore and south part of Hyderabad.	
1877	Drought in Central Provinces, North-Western Provinces, and Punjab.	Famine in Madras, Mysore, Bombay, and Hyderabad.
1878	- - - - -	Famine in North-Western Provinces and Cashmere. Scarcity in Punjab.

Synoptical view of famine chronology

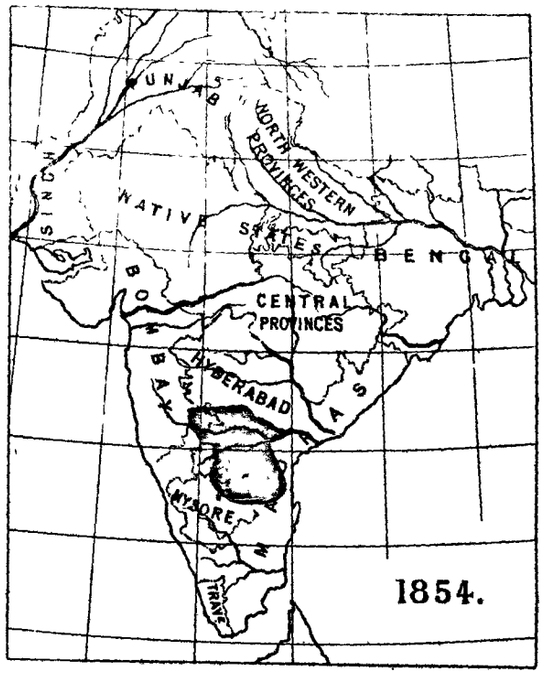
70. The following table, which embraces the period from 1769 to 1878, or 109 years, shows the years in which famines and scarcities have occurred in the chief provinces of India, the degree of intensity and the duration of each, the intervals of



1833.

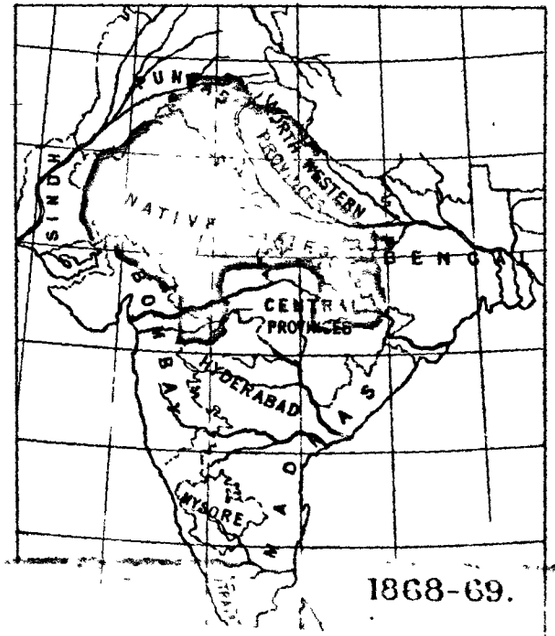


1837.

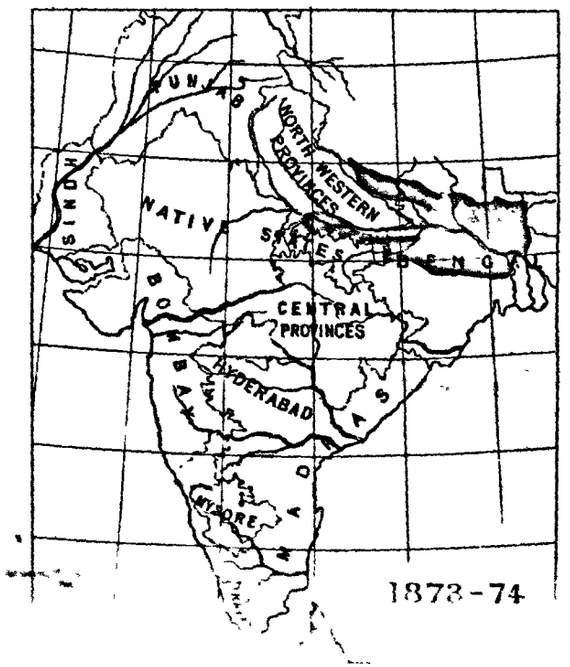


1854.

1860-6



1868-69.



1873-74

time between their occurrence, and the resulting averages as regards each province and the whole of India:—

	Bengal.			N.W. Provinces and Punjab.			Rajputana and Central India.			Bombay.			Madras.			All India.		
		Years.			Years.			Years.			Years.			Years.			Years.	
	Severity.	Duration.	Interval.	Severity.	Duration.	Interval.	Severity.	Duration.	Interval.	Severity.	Duration.	Interval.	Severity.	Duration.	Interval	Severity.	Duration.	Interval.
1769–70	***	1	.	.	.	.	.	.	.	.	.	.	.	.	.	***	1	.
1782–3	.	.	.	.	.	.	.	.	.	**	1	13	**	2	13	**	1	12
1783–4	*	1	13	***	1	14	.	.	.	.	.	.	.	.	.	***	1	.
1791–2	.	.	.	.	.	.	**	1	22	***	1	8	**	1	7	***	1	7
1802–3	.	.	.	.	.	.	.	.	.	**	1	10	.	.	.	**	1	10
1803–4	.	.	.	**	1	19	**	1	11	.	.	.	.	.	.	**	1	.
1806–7	.	.	.	.	.	.	.	.	.	.	.	.	**	1	13	**	1	2
1812–13	.	.	.	*	1	8	*	1	8	**	1	9		.	.	**	1	5
1823–4	.	.	.	.	.	.	.	.	.	.	.	.	**	1	16	**	1	10
1824–5	.	.	.	.	.	.	.	.	.	*	1	11	.	.	.	*	1	.
1832–3	.	.	.	.	.	.	.	.	.	.	.	.	***	1	8	***	1	7
1833–4	.	.	.	*	1	20	*	1	20	*	1	8	.	.	.	*	1	.
1837–8	.	.	.	***	1	3	**	1	3	.	.	.	.	.	.	***	1	3
1838–9	.	.	.	.	.	.	.	.	.	*	1	4	.	.	.	*	1	.
1844–5	.	.	.	.	.	.	.	.	.	*	1	5	.	.	.	*	1	5
1853–4	.	.	.	.	.	.	.	.	.	.	.	.	**	1	20	**	1	8
1860–1	.	.	.	**	1	22	*	1	22	.	.	.	.	.	.	**	1	6
1865–6	***	2	81	.	.	.	.	.	.	.	.	.	**	1	11	***	2	4
1868–9	.	.	.	**	1	7	***	2	7	.	.	.	.	.	.	***	2	1
1873–4	**	1	6	*	1	4	.	.	.	.	.	.	.	.		**	1	3
1876–7	.	.	.	.	.	.	.	.	.	***	2	31	***	2	10	***	2	2
1877–8	.	.	4	**	1	3	*	1	7	.	.	.	.	.	.	.	.	.
Total No. of Famines or Scarcities	4	.	.	9	.	.	8	.	.	9	.	.	8	.	.	21	.	.
Total No. of Years affected by Famine	.	5	.	.	9	.	.	9	.	.	10	.	.	10	.	.	24	.
Total No. of Years of Interval without Famine	.	.	104	.	.	100	.	.	100	.	.	99	.	.	99	.	.	85
Average No. of Years of Interval without Famine	.	.	26	.	.	11	.	.	13	.	.	11	.	.	12	.	.	4

N.B.—One asterisk denotes a severe scarcity.
Two asterisks denote a famine.
Three asterisks denote an intense famine.

Famine statistics.

71. The following table shows the area and the population affected and the number relieved in each of the principal famines of this century, the sums expended on relief of different kinds, the remissions of the land revenue, and the amount by which the income from other sources was diminished, so far as data exist for such a statement. The blanks more frequently mean that there is no information on record than that nothing ought to be entered under the heading in question.

	Area in square miles.	Population affected.	Average Numbers employed daily on Relief-works.	For how many Months.	Average Number daily relieved gratuitously.	For how many Months.	Cost of Relief-works.	Gratuitous Relief: Cost to Government.	Gratuitous Relief: Contributed by the Public.	Cost of Importation of Grain.	Advances to the Landed Classes.	Loss of Land Revenue	Other Expenditure and loss of Income from other sources.	Total Cost to Government.
							Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
[illegible] [illegible] Western Provinces	20,000	8,000,000	—	—	—	—	—	—	—	—	10,00,000	32,00,000	—	42,00,000
[illegible] [illegible]	50,000	8,000,000	—	—	—	—	—	—	—	—	—	8,95,000	—	—
[illegible]	60,000	10,000,000	—	—	—	—	—	—	—	—	—	9,00,000	2,25,000	—
Total of [illegible]	110,000	18,000,000	—	—	—	—	—	—	—	—	—	17,95,000	2,25,000	20,20,000
[illegible]	76,100	16,600,000	—	—	—	—	—	3,00,000	—	—	—	77,50,000	15,32,000	—
[illegible] [illegible]	28,500	4,400,000	—	—	—	—	—	—	—	—	—	9,81,200	—	—
[illegible]	25,200	1,100,000	—	—	—	—	—	—	—	—	—	—	—	—
Total of [illegible]	129,800	22,100,000	—	—	—	—	—	3,00,000	—	—	—	87,31,200	15,32,000	1,05,63,[illegible]
[illegible] [illegible] Provinces	56,100	21,500,000	—	—	—	—	19,64,000	8,000	3,50,000	—	—	95,00,000	—	—
Native States	57,500	6,600,000	—	—	—	—	—	—	—	—	—	—	—	—
Total of [illegible]	113,600	28,100,000	—	—	—	—	19,64,000	8,000	3,50,000	—	—	95,00,000	—	1,14,72[illegible]
18[illegible] [illegible]	25,400	3,400,000	—	—	—	—	—	—	—	—	—	6,47,800	—	6,47[illegible]
1853-4 [illegible]	6,000	800,000	56,500	9	—	—	12,28,000	3,72,000	—	—	—	30,75,000	11,25,000	—
[illegible]	24,000	2,000,000	—	—	—	—	—	—	—	—	—	—	—	—
Total of 1853-4	30,000	2,800,000	56,500	—	—	—	12,28,000	3,72,000	—	—	—	30,75,000	11,25,000	58,[illegible]
1860-1 North-Western Provinces	31,100	14,900,000	25,100	10	33,800	9	9,14,200	2,00,000	3,50,400	—	3,03,000	2,34,700	3,40,000	—
Punjab	16,700	4,200,000	9,000	10	50,000	9	3,26,000	3,11,800	5,22,200	—	3,28,000	14,00,000	2,00,000	
Native States	5,700	1,200,000	—	—	—	—	—	—	—	—	—	—	—	
Total of 1860-1	53,500	20,300,000	34,100	—	83,800	—	12,39,200	5,12,400	8,72,600	—	6,31,000	16,34,700	5,40,000	44[illegible]
1865-6 Bengal	64,800	24,300,000	6,650	21	55,200	17	13,48,000	1,000	18,33,000	62,12,000	—	15,84,000	37,00,000	
Madras	83,206	18,200,000	16,580	11	45,660	11	6,00,000	2,33,000	2,75,000	—	—	15,00,000	—	
Mysore	6,700	1,000,000	—	—	—	—	—	—	—	—	—	—	—	
Hyderabad	7,000	700,000	—	—	—	—	—	—	—	—	—	—	—	
Bombay	18,700	3,400,000	—	—	—	—	1,25,000	—	—	—	—	—	—	
Total of 1865-6	180,406	47,600,000	23,230	—	100,860	—	21,33,000	2,34,000	21,08,000	62,12,000	—	30,84,000	37,00,000	[illegible]
1868-9 Rajputana	178,800	14,700,000	—	—	—	—	—	—	—	—	—	—	—	
North-Western Provinces.	44,300	16,700,000	65,670	12	18,670	9	25,56,000	2,33,000	1,05,000	21,000	10,15,000	2,20,000	3,50,000	
Punjab	19,400	5,600,000	7,180	12	22,800	9	—	1,70,000	2,55,000	—	8,31,000	3,00,000	—	
Central Provinces	41,500	4,400,000	5,760	12	6,100	12	4,89,200	2,75,000	64,400	—	2,29,700	500	—	
Bombay	17,200	3,000,000	—	—	—	—	5,44,000	48,000	46,000	—	—	—	—	
Total of 1868-9	296,200	44,406,000	71,430	—	—	—	35,89,200	7,26,000	5,60,400	21,000	20,76,700	5,20,500	3,50,000	
1873-4 Bengal	40,100	17,750,000	661,560	10	452,300	6	1,90,90,000	31,71,000	—	3,92,44,000	15,00,000	20,000	30,60,000	
North-Western Provinces.	11,200	2,900,000	119,000	4	2,760	9	8,16,600	41,600	52,500	—	14,200	75,100	—	
Oudh	2,900	750,000	30,000	5	—	—	3,17,100	17,900	27,000	—	40,000	1,79,200	—	
Total of 1873-4	54,200	21,400,000	810,560	—	455,060	—	2,02,23,700	32,30,500	79,500	3,92,44,000	15,54,200	2,83,300	30,60,000	
1876-8 Madras	83,800	19,400,000	400,000	22	327,500	22	—	—	—	—	—	1,18,00,000	—	
Mysore	27,100	5,100,000	53,300	20	56,400	20	29,50,000	31,25,000	—	—	—	28,00,000	21,00,00[illegible]	
Hyderabad	30,700	1,900,000	22,800	9	16,300	6	8,38,000	2,44,000	—	—	—	22,00,000	2,98,00[illegible]	
Bombay	64,000	10,000,000	283,000	13	32,687	13	1,05,00,000	12,00,000	—	—	—	1,[illegible]	11,40,00[illegible]	
North-Western Provinces and Oudh.	34,800	18,400,000	45,724	12	13,754	12	16,00,300	3,01,000	—	—	—	—	—	
Punjab	16,900	3,500,000	—	—	—	—	—	—	—	—	—	—	—	
Total of 1876-8	257,300	58,300,000	877,024	—	446,641	—	1,58,88,300	[illegible]	—	—	—	[illegible]	[illegible]	

72. The first lesson taught by this review is that (except in Burmah and the most eastern parts of Bengal, where the rain has never been known to fail, and Sindh, in which the population is wholly dependent on river-irrigation) hardly any part of our Indian Empire has escaped the visitation of severe famine during the last century, and that over considerable portions acute distress has recurred frequently. Taking all the 21 famines and scarcities recorded in the last 109 years in any part of India, the proportion is 24 years of bad seasons to 85 years of good, or about two bad to seven good; in each case on an average one-twelfth of the population of the whole country, that is about 20 millions, may be approximately taken as the portion affected, so that the result might be said to be equivalent to a famine or scarcity over the whole country once in 54 years. Of these calamities, 8 may be classed as intense famines, 9 as famines, and 4 as severe scarcities. The number of famines and the intervals between them.

Omitting severe scarcities, there have been 17 famines, affecting 20 years, and occurring at an average interval of 5 years.

There have been eight greater famines, affecting 11 years, and occurring at intervals which have varied from 2 or 3 to 40 years, and which average 12 years. Of these, five have occurred in the present century, and have affected 202 millions of people, so that each on an average has been felt by 40 millions, or one-sixth of the population of India. As, however, one-fifth of that population is not under British rule, a corresponding reduction must be made from the figures above given in order to indicate the liability which falls upon our own Government.

73. The liability of the several provinces to severe drought appears to be as follows. In Bengal, during the 110 years over which our records extend, four droughts only have occurred, of which two were very severe. Previous to the Orissa famine Bengal had enjoyed complete immunity from famine for 81 years, and on this occasion, as well as in 1783–4, only the western parts of the province were affected. In the North-West Provinces nine droughts are recorded, of which two were intense and three very serious. The two greatest famines in this part of the country, those of 1783 and 1837–8, were separated by an interval of 53 years, but there was a frequent and highly irregular occurrence of less important droughts. In Bombay nine seasons of drought appear, of which two were extreme. In Madras there were eight such seasons, of which two were excessive. Excluding Bengal, the average interval between the several recorded droughts, great and small, in any one province, is about 11 to 12 years, and between those of the severest type about 50 years, but the deviations from these averages are very large, and the records are not sufficiently accurate to give more than approximate results. Liability of different provinces to drought.

These conclusions may be otherwise summed up by stating that the Government of India must be prepared for the occurrence of scarcity, in some degree of severity, and in some part of the country, as often as two years out of every nine; and that great famines may be anticipated at average intervals of 12 years. The danger of extreme famine in any one province or locality arises on the average not oftener than once in 50 years; though drought followed by severe distress must be expected as often as once in 11 or 12 years. The records are not of a nature to enable us to form any decided opinion whether droughts have recurred more frequently of late years than formerly; but, bearing in mind the far greater attention paid to these visitations recently, our general conclusion is adverse to such a supposition.

74. Whatever may be the ultimate result of scientific discussion as to the existence of a true periodical fluctuation in the rain-fall, to which we have already alluded, we can now only conclude that no such knowledge yet exists as to afford any ground for administrative action based on well-founded anticipation of the quantity of the rain-fall from year to year; and that whatever preparations we make to meet seasons of scarcity must rest on the presumption that, though their recurrence is inevitable, they will come upon us with very little warning and at very irregular intervals. Irregularity of the recurrence of droughts.

75. It is manifestly important to form the best possible estimate of the greatest area and largest population likely to be visited by famine at any one time. The experience of the past shows that seasons of drought do not occur simultaneously in Southern and Northern India, though some tendency is shown for a bad year in the north immediately to follow a bad year in the south. No deficiency at once so serious and so widespread in its effects as that which from 1876 to 1878 was experienced in various parts of the country had previously occurred in the century. The total area which suffered from famine in Southern India during 1877 was about 200,000 square miles, with a population of 36 millions. In the next year an area of 52,000 square miles in the North-West Provinces and the Punjab, with a population of 22 millions, was afflicted by a failure of the rains, though it suffered to a far less degree. Probable greatest area of famine and extent of relief.

Distinguishing the three degrees of famine as intense, severe, and slight, the famine in Southern India was intense in an area of 105,000 square miles, inhabited by a population of 19 millions; it was severe in an area of 66,000 square miles, with a population of 11 millions; and it was slight in an area of 34,000 square miles, with a population of 6 millions. Where the distress was but slight the necessity for giving relief arose only in isolated localities, and the administration of famine relief on such a scale as to need special measures was in practice confined to the tracts where the famine was intense or severe. Relief was afforded to 780,000 persons or 5 per cent. of the population of the more afflicted area in Madras for 22 consecutive months, and in Bombay to 320,000 persons, or 3½ per cent., for 13 months. The maximum number relieved during the worst month was about 500,000 daily in Bombay and 2¼ millions in Madras, or from 6 to 15 per cent. of the population severely affected.

In Bengal, in 1873–4, the area severely affected was 21,000 square miles, and the population of that area was 10 millions: of that population about 10 per cent. received direct relief for an average period of 9 months, and the highest number in receipt of direct relief at any one time was about 20 per cent., or 2 millions daily.

The famine of 1868–9 is the one which came nearest to that of 1876–8 in severity; indeed, it surpassed that calamity in extent, for it covered the space of 300,000 square miles. It was intense over an area of 113,000 square miles, but of these 110,000 square miles were in the Native States of Rajputana, and were thinly inhabited, the population of this tract being only 7¾ millions. The famine was severe over 112,000 square miles (only half of which was in British territory), and among a population of 21 millions, two-thirds of whom were British subjects. The famine of 1865–6 ranks third in respect of the area it covered, and the population it affected was even larger than that in 1868–9, or in the Southern Peninsula in 1876–8, but the distress it caused was not nearly so grievous. The area of intensity was the Province of Orissa and the neighbouring districts to north and south, a tract which contained only 31,000 square miles, with a population of 6 millions, and the famine was severe in 50,000 square miles more, with 11½ million inhabitants. In the rest of the country afflicted by it the distress was slight, and little or no relief was called for. Hence, in spite of the wide area of the drought, this famine was less generally disastrous than either of the two great calamities which succeeded it.

Looking then to those parts of the country in which there have been the worst famines and the greatest distress, we find in the history of the past no case which has surpassed the famine of 1876–8 in intensity; and it seems reasonable to conclude that it is not likely to be exceeded in the future, either in the extent of British territory affected or in the degree of relief that will be required. On this presumption it may be estimated that the largest population likely to be severely affected by famine at one time may be put at 30 millions. To arrive at the numbers likely to come on relief, we may safely take a proportion slightly lower than that of the Behar famine, say 15 per cent., or four and a half millions, as the maximum number likely to be in receipt of relief in the worst months, and about 7 or 8 per cent., or from two to two and a half millions, as the average number likely to require relief continuously for the space of a year. These proportions provide for relief on a scale about double that actually given in Madras and Bombay in 1876–78.

Relation between drought and duration of famine.

76. The duration of periods of scarcity (a matter greatly affecting their severity and the consequent cost of relief) is naturally connected with the length of the intervals between the harvests, or between the time of one harvest and the succeeding season for sowing, the greatest pressure being frequently relieved when a favourable rain-fall has given practical evidence of the prospects of the coming crop being good. In Upper India, in the Central Provinces and Bombay, and wherever the two harvests of the year are of nearly equal importance as regards the food they produce, if the monsoon is so deficient that the autumn crop is lost, but if the spring crop can be sown over a fairly large area, the severity of the loss will be greatly mitigated, though it may not be wholly relieved when that harvest is secured, but is liable to a partial revival as long as field labour is not required. If, however, the spring crop also cannot be sown, the pressure due to the failure will certainly be felt till the next autumn crop begins to ripen. In Bengal the great winter rice crop is the one liable to suffer from early cessation of the rain, and if it is lost the spring crop will afford a material alleviation of the calamity so far as regards Behar; but in Central Bengal and Orissa hardly anything is grown at this time, and these regions will probably continue to suffer till the next year's early rice ripens in September,

and the prospects of the winter rice are well assured. In Madras and Mysore, if the crops grown under the south-western monsoon are lost, much may be retrieved if the N.E. monsoon is good and fills the tanks and rivers, so that a large area of rice land can be artificially irrigated; if this too fails, no crop will come in materially to assist the people till the succeeding autumn. Experience shows that extreme pressure does not arise till local stocks have been somewhat reduced, and famine is thus hardly known to begin, as a consequence of a failure of the south-west monsoon, before the month of November. Again, when the prospects of the next harvest are practically assured, hope and credit revive and reserved stores of food are released, and thus the effects of famine may be expected to wear off a month or two before the crops are actually cut. From these considerations it may be gathered that the pressure caused by drought in a single year will generally last for about eight or nine months, and when the pressure is relieved in a shorter time, the recovery is proportionally rapid. A scarcity extending over two years is rare, but the intensity of the suffering caused by such a famine is greatly aggravated as the period is prolonged.

What loss of the harvest produces famine.

77. From what is known of famines in respect to which any materials for a detailed estimate exist, it is calculated that from a half to three-quarters of the ordinary out-turn of the food grain of the year has been lost in the tracts most severely affected. It may therefore be inferred from the experience of the past that a year which yields more than 50 per cent. of a full crop will produce food enough for the population under the stimulus to economy caused by high prices, and that, taking into account the grain stores and the probable importation, there will be no such pressure as to require special measures of relief. When the crop is so reduced that the whole out-turn of the year is diminished to 25 per cent. of a full crop, it may be taken as certain that intense famine will prevail. Great uncertainties, however, surround all estimates of failure of crops in such a country as India, and it may easily happen that the particular circumstances of a province will render the effect of a drought more than ordinarily disastrous. An estimated failure of even a third of the year's out-turn will always demand the utmost vigilance and preparedness on the part of the authorities, as relief measures may at any moment become necessary.

Effects of scarcity on prices.

78. There is much difficulty in estimating in any precise way the effect of a short harvest on prices, but it may be said approximately and generally that, in time of very great scarcity, prices of food grain rise to three times their ordinary amount, so that whereas in ordinary years the price of the food grain of the mass of the people may be from 20 to 30 seers per rupee (or 20 to 30 lbs. per shilling, equivalent to 25 to 17 shillings per quarter of 500 lbs.), in time of great scarcity it will rise to 8 or 10 seers per rupee (or 8 to 10 lbs. per shilling, which is 63 to 50 shillings per quarter), and even higher. Much caution, however, is requisite in regarding prices as a sound standard by which to estimate the severity of famine or distress, not only in making comparisons between periods and places considerably separated, but in all circumstances. It is a well-ascertained fact that prices which would be regarded as indicating famine in one part of the country are quite compatible with undisturbed prosperity in another.

Estimate of the cost of relief given in past famines.

79. The figures given in the table in paragraph 71 show all that can now be ascertained as to the cost of the relief given to the population that has suffered in Indian famines. During the first quarter of the present century the position of the British in the country was not such as either to create any sense of a general obligation to give relief, or to supply the means of affording it. During the next 30 or 40 years, as the country became settled and all branches of the administration improved, the sense of this obligation was developed and more and more fully acted on; but there can be little doubt that on many occasions the wants of the people were very incompletely met, and that much suffering and mortality must have ensued. Allowing for the cases in which no records exist, it may be estimated that for the first 70 years of this century about 3 millions sterling were spent in direct State relief, and a somewhat larger amount was contributed as a remission of land revenue, for a total population rising from 100 to 200 millions. The far larger sums which have been spent more recently on similar objects, amounting during the six years 1873–1879 to not less than 14½ millions in direct outlay and 2½ millions in loss of revenue, are still small when compared with the cost of the relief of the poor of England, which for a population of 34 millions amounts to about 7 or 8 millions in a single year. But relatively small as the amount expended in India has often been, the administration of even such restricted measures of relief has, in the

absence of a clearly defined set of principles and rules, and under the conditions which necessarily attend these measures, taxed to the utmost the powers of the Government.

Effects of scarcity on the death-rate.

80. There is great difficulty in forming any trustworthy estimate of the mortality directly consequent on famine. It is only within recent years that systematic registers of deaths have been commenced in any part of India; everywhere they are still very incomplete, and in many cases hardly more than rough approximations to the truth. In the two provinces in which more than one census has been taken the results are such as to show that much prolonged experience is required before any trustworthy generalizations on the laws of life in India can be based on actual facts; and all others are no better than speculation. No statistics exist as to the distribution of deaths among various classes of the people in time of famine, though it is certain that the labouring classes and village artisans are those that suffer most. The registers now kept suffice, however, to give positive proof of the greatly increased mortality that accompanies seasons of scarcity, though conflicting opinions exist as to the degree in which the two phenomena can be regarded as standing to each other in the relation of cause and effect. Great epidemics almost invariably follow upon seasons of severe scarcity. To some extent famine and pestilence are the twin-offspring of the drought, which, while it withers the crops, exposes the diminished water supply to pollution; and it may be reasonably supposed that the atmospheric disturbances which prevent the occurrence of the summer rains, and those which follow as a consequence of the failure of the rains, such as abnormal conditions of temperature and humidity, may be hostile to human life and favourable to the spread of malignant disease. But, in any case famine, if not the direct cause of epidemics, greatly increases their destructiveness, inasmuch as if the people are in an unfavourable condition—and there can be no condition more unfavourable to health than that of being in want of food—then this condition must have an influence, and in all probability a very great influence, on the extent and severity of the prevailing sickness, by whatever name it may be called. The diagnosis of disease recorded in the vital statistics is, moreover, very incorrect, and deaths arising from starvation are no doubt often attributed to other causes, such as cholera, small-pox, dysentery, and fever. Death from famine is not as simple and easily recognizable a matter as was formerly supposed. The effect of chronic starvation is to induce functional morbid changes in the intestinal organs which, when they have gone to a certain length, are incurable, and which manifest themselves in symptoms that often imitate those of other diseases.

Mortality during the famine of 1876–8, and in the last 30 years. App. No. II.

81. It has been estimated, and in our opinion on substantial grounds,* that the mortality that occurred in the provinces under British Administration during the period of famine and drought extending over the years 1877 and 1878 amounted, on a population of 190 millions, to 5¼ millions in excess of the deaths that would have occurred had the seasons been ordinarily healthy; and the statistical returns have made certain, what has long been suspected, that starvation and distress greatly check the fecundity of the population. It is probable that from this cause the number of births during the same period has been lessened by two millions; the total reduction of the population would thus amount to about seven millions. Assuming the ordinary annual death-roll, taken at the rate of 35 per mille on 190 millions of people, to be 6½ millions, the abnormal mortality of the famine period may be regarded as having increased this total by about 40 per cent.

Such a famine, however, as that of 1877–78 is almost unprecedented in severity extent and duration, and so great a mortality, it may reasonably be hoped, is likely to be of extremely rare recurrence. Taking the famines of the last 30 years, as to which alone an estimate of any value can be made, it would perhaps be safe to say that from 1848 to 1878 the abnormal deaths which occurred in years of famine did not fall short of 10 millions. This would give an increased mortality of about 300,000 per annum, which, spread over a population of about 200 millions, would be less than 2 per mille. Even if this estimate is in error to the extent of one-half of the truth, the effect of famine would, when viewed in relation to the fluctuations due to other causes and to its ultimate effect on the growth of the population, be much less important than might at first sight have been supposed.

Relation of famine mortality to normal mortality.

82. The true significance of these figures will be better appreciated when they are considered with reference to ordinary fluctuations in the mortality of the country. There is no doubt not only that the general death-rate when compared with that of England is high, but that it is liable to far greater variations. The yearly death-rate of many Indian towns (where registration can be more exactly conducted than in the country) appears from the reports of recent years to have risen occasionally for many months together to rates varying from 40 to 100 per mille, and even higher. In t

months of September and October 1879 a mortality was registered in the North-West Provinces which in some districts suddenly raised the death-rate from its ordinary total of about two or three per mille per month to nearly 40, and the ratio for the whole province for the month of October rose from 3·4 to 10 per mille. The abnormal mortality had not wholly ceased by the end of December 1879, and the effect of this was that in the district that suffered most the actual death-rate of the year 1879 rose from an average of 40 to 118 per mille, implying an increased mortality of 78,000 on a population of a million; and in the whole province, the actual mortality of the year rose from an average of 23 to 45 per mille, which indicates an increase of 924,000 deaths on a population of 42 millions. These rates are considerably in excess of those which have prevailed in districts suffering most acutely from famine. In the worst month of 1877 the death-rate only reached 49 per mille per annum for the entire Bombay Presidency, and 60 per mille for the entire Madras Presidency. If special districts are compared, the highest rate in the worst month in the worst district of Madras was 13 per mille per month, and in the worst district of Bombay it was 12 per mille; in the two worst districts of the North-West Provinces in 1879 it rose to the extraordinary height of 37 per mille. Even these rates are exceeded by some which have been reported at times in some towns of the Punjab. It is certainly to other causes than a deficiency of food that such mortality must in many cases be referred. In 1879, in the districts just referred to, no scarcity whatever existed, prices throughout the whole country were moderate, the autumn harvest had been exceptionally good, and the mortality was attributed by the sanitary authorities to a severe outbreak of malarial fever. We are therefore forced to conclude that the population of India is exposed continually to destructive agencies, which under more favourable conditions might be regarded as preventible, but against which society has at present neither the means nor the knowledge necessary to secure its protection. Large numbers of the people live in so primitive a condition, irrespective of anything that can properly be called poverty, as to render them liable to diseases against which they have no effectual remedy or defence. Epidemics may sweep them off by tens of thousands without attracting attention, because these agencies are incessantly at work. Famine, which intensifies their activity, is more conspicuous from its less regular recurrence, but it is really only one, and perhaps not the most deadly, of numerous influences by which at present human life among the people of India is cut short, and which can be effectually counteracted only by the general advance of society in wealth, knowledge, and material resources.

The possibility of saving life in time of famine.

83. In these circumstances the hope that any human endeavours will altogether prevent an increase of mortality during a severe famine is untenable. It is impossible for the State entirely to counteract the effect of high prices, the cessation of wages, the disturbance of the ordinary routine of life, the general results of shortened food-supply to millions of people. No imaginable system of relief will completely meet all the various degrees of privation and suffering which a famine produces, and which are all more or less prejudicial to the public health and life, though many are too indefinite and obscure to be dealt with by any machinery of official charity, however elaborate and well contrived. There must always be suffering and want which will escape notice; and however extensive be the measures of public aid, and however reasonable be the terms on which it is offered, there will always be classes who, from fixed habits or social institutions of various sorts, or from their personal character or ignorance, will neither help themselves nor be helped, and who, though they suffer from extreme want, will linger on without applying for or accepting relief till it is too late to save their lives.

Recuperative power of the country.

84. But great as is the loss of life which has attended these terrible visitations, we are not without hope that their effects will in future be gradually diminished in intensity, partly by the more efficient character of the relief given, partly by the extension of the means of communication and development of internal trade, and partly by that greater preparedness of the people to meet them which grows from the increase of thrift and resourcefulness, and the accumulation of capital due to a settled and civilised Government. It is, we believe, demonstrable that the effects produced by the famine of 1876–8 on the general prosperity of the country have been less disastrous than those of former calamities, none of which were more grievous and most of which were not to be compared to it in severity. The famine of 1770 resulted in wide-spread desolation of the most afflicted districts, so that we read of "depopulation and ruin," "the thinness of the inhabitants," "many hundreds of villages entirely depopulated," "half the ryots credibly reported to have perished," and a complete disorganisation among the landed classes which lasted for

many years. The famine of 1803 struck such a blow at the prosperity of Khandesh and Ahmednagar that even in 1867 the traces of its ravages were still visible in the ruins of deserted villages which had not been repopulated. In the famine of 1833 so much land went out of cultivation in the Gantur district that even in 1850 the land revenue was only three-fourths of what it had been in 1832. In 1837, in the North-Western Provinces, "the pressure was so great that the ordinary bonds of society seemed to be broken by it. In 1841, the still deserted lands and abandoned houses" in the Etawah district bore evidence to the devastation and waste of life, and during the next five years the land revenue continued to be less by 12 per cent. than in the period preceding the famine. Col. Baird Smith, from whom the above quotation is made, testified that similar effects were hardly noticeable in 1860–1, and this he attributed to the increased power of resistance and self-support among the landowners following the introduction of long-term settlements, which dated from about 1840. Still more remarkable are the facts recorded in the agricultural statistics of Bombay and Madras for the year 1877–8. In Madras the area occupied exceeded by 50,000 acres that of 1874–5, and the land revenue was eight lakhs of rupees in excess of the average demand before the famine. In Bombay there was an actual increase of 70,000 acres of revenue-paying occupied land in excess of the previous year, and the land revenue was increased by one lakh over that of 1876–7, and by 4½ lakhs over the average of the last 10 years. "Thus," as the Secretary of State remarked, Despatch, 26 Feb. 1880. "in a year itself of deficiency of crops, depression of trade, and general unhealthiness, "which immediately succeeded the most calamitous famine of modern times, the "facts testify to a remarkable development of the power of the agricultural classes to "resist and recover from the effects of unfavourable seasons." We may hope that the same recuperative power of the country will manifest itself more and more clearly in future; and that it will, by degrees, extend from the landowning classes to all parts of the population.

Certainty the recurrence of famine.

85. We now pass to the consideration of the general character of the action of the Government in times of famine. A very long period elapsed before the conviction was attained that Indian famines are necessarily recurring calamities, against which such precautions as are possible must be taken beforehand, and that it is the duty of the Government to do its utmost in devising some means of protecting the country, and to persevere in its attempts till some solution of the problem has been obtained. This result was no doubt due to the almost total absence, until within comparatively recent times, of trustworthy statistical knowledge as to the numbers of the people, the rates of their deaths and births, and the influence on these rates of epidemic disease or local distress, combined with an equally insufficient insight into their economical condition, and particularly an absence of agricultural statistics in an accessible form. We fear that even yet the vast importance of knowledge of this description is but imperfectly appreciated in many quarters. The want of it has been experienced by us in almost every part of our inquiries, and we feel it to be necessary thus emphatically to call attention to the subject, as such knowledge is, in our opinion, one of the principal instruments on which the Government must rely in preparing for its conflict with famine.

Historical sketch of the views of Government in respect of famine relief.

86. An equally remarkable change in the manner of viewing the obligations of the Government in dealing with famines is indicated by a comparison of the measures of relief offered to the country 50 years ago with those now considered necessary. This change has been the direct consequence of a greatly increased knowledge of the real condition of the people. As the officers of the Government have gradually become more alive to the actual consequences of extreme scarcity and to their terrible character, and have painfully obtained by experience an insight into the manner in which these calamities arise and in which they are to be met, in the same proportion has the sense of the grave duty that rests upon the State to avert the results of famine been quickened and the action of the Government stimulated. No sterner warning could be given of the paramount necessity of obtaining a true knowledge of the condition of the great population which we have undertaken to govern in British India, than is to be found in the history of the famines that have desolated it. We must not permit ourselves to be deceived by the vain hope that the famines of recent years have been more difficult to deal with than those of the past, nor have we any right to suggest that those who have gone before us were less humane than ourselves, for there is direct evidence to the contrary. The lesson of experience is that it is vain to attempt to deal successfully with these calamities, which so frequently deprive a large proportion of the people of their food supply, without a liberal expenditure of money, that in order to be effectual this expenditure

must be applied with careful attention to the exact conditions under which these visitations arise, and that as a primary condition of success in the administration of relief a more thorough insight into the vital and economical statistics of the country is absolutely essential.

Earliest views as to relief and interference with trade.

87. The miseries of famine, and the possibility of its mitigation by State interference, were at the earliest period of the British Administration of India the topics of official consideration. The great famine which in 1770 desolated parts of Lower Bengal gave rise to a special inquiry and to plans for the alleviation of similar future disasters, and the authors of the Permanent Settlement were keenly sensible of the serious character of Indian droughts, and hoped that one of the effects of that measure would be to put the country and the people in a better position for enduring them. In the famines of 1782, 1792, and 1807 in Madras, 1784 in Bengal, and 1792 and 1803 in Bombay, the Government, following the opinions commonly held at the time, appears to have acted on the belief that the proper remedies were to be found in prohibitions of the export of grain, penalties on merchants who hoarded it or enhanced its price, and other interferences with the course of trade. It was not till the famines of 1812 in Bombay and of 1824 in Madras that the Government adopted the principle of non-interference with trade as a cardinal rule of policy.

Impossibility of giving relief efficiently.

88. But the idea of systematised and effectual action to prevent the suffering and mortality incidental to famine belongs necessarily to later times. While the Government was still unconsolidated,—while wars from time to time still carried destruction into almost all the provinces of India,—while the area, population, and resources of the country were unknown quantities,—while only the rudest guesses could be made at the effects of climatic disturbance on its food crops,—while no machinery existed for the collection of agricultural, economical, or vital statistics, or for the rapid transmission of such information as was locally available,—and, above all, till improvements in the means of communication by roads and railways rendered feasible the transport of grain in large quantities and for long distances, a famine was regarded, and with good reason, as a calamity wholly transcending the powers of man to counteract or even materially to mitigate its effects, and which had to be endured, like other natural phenomena, in passive submission to an overpowering agency. The Native Governments whom the first British administrators represented, and to whom they ultimately succeeded, scarcely attempted anything beyond occasional and unsystematic acts of almsgiving, and the earlier despatches of the Bengal Government, while breathing a tone of sincere compassion for the sufferings occasioned by famine, are busied rather with its fiscal results, as affecting the responsibility of the Company towards its shareholders, than with schemes, which would have seemed wholly visionary, for counteracting the inevitable loss of life.

First attempt to relieve distress by public works.

89. As early, however, as 1792 we find the Madras Government adopting for the relief of the famine distress of that year the system of employment on public works, which has been invariably followed by the administrators of later times. In a subsequent famine which visited that province in 1806 the question of the most expedient form of relief gave rise to a controversy as to the opening of works near the people's homes, and the importation of grain by Government, which has repeatedly been renewed on subsequent occasions, and cannot be said even now to be concluded.

Relief measures adopted in 1837–8.

90. The famine of 1837 in Upper India was characterized by the larger scale on which arrangements were made to meet distress, and by further progress towards formulating the principles on which the administration of relief ought to be based. It was accepted as the general rule for apportioning the responsibilities of the Government and the public with regard to relief, that to the former belonged the duty of offering employment to the able-bodied, while that of giving relief to the helpless and infirm attached, as in ordinary times, to the community at large. This doctrine, with modifications, re-appeared on various subsequent occasions, was distinctly reaffirmed by the Orissa Famine Commissioners, and has only in quite recent times been abandoned in favour of the view that the State cannot divest itself by delegation to others of the responsibility of providing the necessary relief for every class of a famine-stricken population, including that class which is certainly the most helpless.

More elaborate measures in 1860–1.

91. The famine which twenty-three years later visited the same province was the subject of still more careful treatment and elaborate investigation. Large public works for the able-bodied, employment near their homes for such as could not travel far from their villages, and gratuitous aid, generally in inclosed poor-houses, and mainly at the expense of the charitable public, were the chief measures of relief. The searching inquiry which was instituted into its history and results, as described in the well-known Report of Colonel Baird Smith, throws much light on the whole subject

of famine relief administration, and is justly regarded as having contributed largely towards the more adequate fulfilment of this class of State obligation.

Failure of the administration in Orissa in 1865-6.

92. In Bengal a long immunity from famine had encouraged a belief in the improbability of its occurrence, and had left the local officers without any direct experience as to the proper methods of relief. The province of Orissa, to which neither nature nor art had supplied the means of constant communication, found itself in 1865, on the almost total failure of its rice crops, suddenly devoid of sustenance, and a very large mortality ensued before the tardy action of the Government afforded any material assistance. The results of this calamitous season concentrated public attention on the disastrous nature of Indian famines, and the inadequacy of the means available for counteracting them. The events of that and the following year proved with lamentable distinctness that neither the Government nor the local administration possessed an adequate knowledge of the facts or the appliances necessary to offer relief with promptness and efficacy.

Increased activity in 1868-9.

93. The painful lesson taught by this calamity sank deep into the minds alike of the rulers of the country and of the English public, and its results were apparent in the administration of the famine, which three years afterwards visited the North-Western Provinces, and still more in that which in 1873–4 was experienced in Behar. In 1868 every district officer in the North-West Provinces was reminded that "he "would be held personally responsible that no death occurred from starvation which "could have been avoided by any exertion or arrangement on his part or on the part "of his subordinates," and an outlay on a very large scale was incurred in the measures adopted by the Government for the employment and relief of the population.

Energetic efforts made for relief in 1873-4.

94. These influences were still more apparent in the famine of 1873–4. The memories of Orissa led to the resolution that, so far as money, zeal, and skill could avail, no such effects should be produced by the similar visitation in Behar. The whole energies of the Government were strained to the utmost, and every appliance at the command of the State was brought to bear on the task before it. Prudential considerations were subordinated to the paramount necessity of relieving distress and obviating mortality; life was preserved, but money was spent profusely, and a famine of unusual brevity and of no exceptional severity was found to have involved an expenditure of about 6½ millions, or as much as had been spent in every form of relief in the previous famines since the commencement of the century.

Financial effects of these relief measures.

95. These results brought prominently to notice the position of the Indian Exchequer with reference to future claims upon it of like nature, and the Government of India came to the conclusion that the periodical recurrence of famine ought henceforth to enter into its calculations when making provision for its ordinary wants from year to year, so that the expenses involved in famine relief—which it was fully recognized must certainly be large—should no longer be permitted to add to the permanent debt of the country, and thus to throw a constantly increasing burden on posterity.

More serious financial effect of the famine of 1876-7.

96. It was in these circumstances that the Government found itself when the drought of 1876 came upon Southern India. The great magnitude of the difficulty to be met became apparent before the end of that year; a calamity had to be faced, which, judging from the area affected and the completeness of the failure of the harvests, seemed likely to exceed in gravity anything that had occurred in the present century. With the experience of 1873–74 fresh in their memories the Government conveyed to their officers engaged in conducting the measures of relief a warning as to the extreme importance of guarding against wasteful expenditure. The prudence of such a caution was shown by the fact that in consequence of the long duration of the famine and the extensive area over which it spread, the direct outlay on relief eventually reached the sum of nearly 8 millions, thus raising the whole amount spent in five years between 1873 and 1878 to no less than 17 millions sterling, besides about 1¼ millions lent to Native States to assist them in carrying out measures of relief.

Modification of relief principles adopted in Behar.

97. It is a matter of notoriety that an impression had become widely prevalent in India that the desire to afford proper relief to all distress in the Behar famine had led to a lavish expenditure by Government in the importation of grain, and to some relaxation of the precautions without which all relief, and especially that which is gratuitous, is liable to be misapplied. Though it was not directly so declared, there can be no doubt that the advisers of the Government of India were influenced by these views. More particularly, the considerations which had, in the case of Behar, been held to justify the purchase of grain by the direct agency of the State in order to supply the requirements of the population affected by the scarcity, were decided not to be applicable to the circumstances of Southern India, and the movement made in this direction at Madras was at once stopped.

98. The result of these convictions was a declaration by the Government that while on the one hand no effort should be spared, consistently with the resources of the State, to prevent deaths from famine, on the other it could not undertake to prevent all suffering and to give general relief to the poorer classes of the community. The mission of Sir Richard Temple to the distressed districts, there to confer with the local authorities and to offer his advice, insured the utilisation, as far as circumstances admitted, of the experience obtained in Behar; and subsequently, as Governor of Bombay, he directed the relief operations in that Presidency. It is understood that the Madras Government in the management of the famine of 1876–77 in that province aimed at substantial conformity to the principles adopted in Behar in 1873–74; and it does not appear that the theory of the obligation of Government in regard to famine relief followed in Bombay differed materially from those principles, though in practice important modifications arose from the adoption of the policy of leaving the supply of food grain to the ordinary operations of trade, and from the greater anxiety shown to avoid profusion of expenditure and to secure the useful application of labour.

General enforcement of those principles.

99. The experience of 1876–77 led to the re-affirmation and more complete carrying out of the financial policy initiated in 1874 of regarding the liability to meet the necessary outlay for famine relief as one to be provided for from annual income, and provision was accordingly made in 1878, by a re-adjustment of the public income and expenditure, for securing a yearly surplus of $1\frac{1}{2}$ millions sterling to discharge this obligation. This arrangement, while it has offered a pledge of the recognition by the State of its responsibility for giving relief on a scale commensurate with the wants of the people, has at the same time supplied the source from which such relief may be henceforth afforded with confidence and promptitude, whenever the necessity arises.

Financial provision for meeting the cost of the famine.

100. The sums spent in 1873–74, and in 1876–77, though very much larger than anything before thought necessary, are still not such as to justify the fear that famine relief will hereafter be a cause of financial embarrassment, if it be remembered that severe famines as a rule affect limited areas, that considerable portions of the country are naturally exempt or have been artificially protected from them, and that such great emergencies are of rare occurrence, intervals of 11 or 12 years commonly elapsing between the scarcities of second-rate intensity, and more than double that period between the severest famines. Nor should it be forgotten that certain causes of large outlay, such as that which was considered obligatory in Behar in 1873, may most likely be avoided in the future, and that even if in some directions increased expenditure may be required, in others economy may be obtained by a better application of means to the end in view. Taking the figures before arrived at (par. 75) as indicating the probable maximum number of persons to be relieved in the worst famine for an average time of one year to be $2\frac{1}{2}$ millions, and reckoning the cost per head, including all contingencies, as not likely to exceed 50 rupees, or 5*l*., the maximum charge in any future year would be $12\frac{1}{2}$ millions sterling. But such extreme cases would be of rare occurrence, and the average numbers for a series of years would be far less, not amounting to more than 250,000 yearly. This estimate is obtained from the calculation that the average number affected annually in all India is, as shown in para. 72, one fifty-fourth of the entire population, or $4\frac{1}{2}$ millions; and of this, four-fifths, or $3\frac{1}{2}$ millions, are British subjects. Taking 7 per cent. (as in para. 75) of the affected population to be the proportion that stand in need of relief measures, the number to be supported on an average for one year will be 245,000; and the cost of their support at 5*l*. a head would involve a yearly average charge of $1\frac{1}{4}$ millions. Considering the doubts that must necessarily surround any such estimates, the accordance of the sum thus obtained with the $1\frac{1}{2}$ millions adopted by the Government of India in 1878 seems to justify the belief that this last-named amount is not likely to be exceeded as the average charge for famine relief over a series of years. This sum of $1\frac{1}{2}$ millions per annum roughly approximates to $\frac{1}{2}$ per cent. on the value of what we estimate (in para. 155) to be the average annual out-turn of food grain in the country.

Famine relief no cause of financial embarrassment.

101. On a consideration of the measures adopted for the relief of past famines it seems impossible to declare that the procedure followed in the treatment of any one of them was altogether successful, or such as should be entirely accepted as a precedent for future guidance. We cannot doubt that the measures taken in the famine of 1873–74,—though they must be recognized as successful so far as the absence of mortality can be received as a test,—exceeded the necessities of the case, but in default of precise information as to the loss caused by the drought, both taken absolutely and in comparison with the loss on other occasions, it is impossible to estimate the degree in which the adoption of a different set of measures would have produced a different result from that which actually occurred. Regarding the famine of

No former procedure as to famine relief to be altogether regarded as a precedent.

1876–78, it can scarcely be asserted that the system adopted was altogether satisfactory or efficient; nor is it possible to say precisely in what degree the calamity was susceptible of mitigation. So great are the necessary uncertainties which surround such matters, that opinions may reasonably differ as to the relative or absolute extent and severity of the different scarcities, as to the actual number of deaths properly attributable to famine or want, and as to the extent to which the intervention of Government really led to saving of life, or in which administrative mismanagement resulted in suffering and mortality, which might have been prevented under a better system.

But principles can be laid down based on past experience.

102. But this negative conclusion need not interfere with the practical utility of the inquiry on which we are engaged. Our task is, by careful consideration both of the shortcomings and successes of the past, to ascertain and lay down the general principles of a sound and efficient system of relief; and we find no serious difficulty in coming to conclusions in this sense which we generally approve and submit for the consideration of the Government.

Want of diversity of occupations in India.

103. A main cause of the disastrous consequences of Indian famines, and one of the greatest difficulties in the way of providing relief in an effectual shape, is to be found in the fact that the great mass of the population directly depends on agriculture, and that there is no other industry from which any considerable part of the community derives its support. The failure of the usual rain thus deprives the labouring class, as a whole, not only of the ordinary supplies of food obtainable at prices within their reach, but also of the sole employment by which they can earn the means of procuring it. The complete remedy for this condition of things will be found only in the development of industries other than agriculture and independent of the fluctuations of the seasons. With a population so dense as that of India these considerations are of the greatest weight, and they are rendered still more serious by the fact that the numbers who have no other employment than agriculture, are in large parts of the country greatly in excess of what is really required for the thorough cultivation of the land. So far as this is the case, the result must be that the part of the population which is in excess of the requirements of agriculture eats up the profits that would otherwise spring from the industry of the community. It is not surprising that in a country thus situated material progress is slow.

Effects of density of the population.

104. This density of the population, though greatest in the districts which are most productive and least liable to suffer from drought, is yet generally such as to afford proof that the effect of famines in checking the increase of numbers is less than is often supposed. The greater density of the population of the richest rural districts of India, as compared with that of corresponding tracts in Europe, can hardly be otherwise accounted for than by the greater ease with which the immediate requirements of human life—food and warmth—are satisfied in the climate of India. It would be to travel beyond the limits of our present inquiry to attempt to compare the physical ease and comfort of an average Indian peasant with those enjoyed by one of the same class in Northern Europe, but the advantage would probably be greatly in favour of the former, though his life may be shorter and is subject to greater risks. To this same advantage of the Indian peasant in respect to the ease with which the wants of life are met is, doubtless, due his relatively slower progress in all the arts which have for their aim the protection of man against physical discomfort, and which in their aggregate are among the principal constituents of what is termed civilization; and to this fact, and to the larger and less usefully employed population in which it has resulted, must in great measure be attributed the slower accumulation of national wealth.

Obligation of the State to give relief in time of famine.

105. The precise circumstances under which it becomes right and necessary that the resources of the State should be applied to the relief of want or suffering must differ in different countries, but the general conditions by which the obligation is governed appear to be these: (1), that the calamity shall be one which places it beyond the power of an individual to obtain the requisite relief or efficacious remedy otherwise than with the aid of the State; and (2), that the intervention of the State is likely to produce a practically beneficial result. There can be no doubt that a calamity such as famine, exceptional in its nature and arising from causes wholly beyond human control, which deprives an entire population of its customary food supply, and arrests the ordinary employments of the wage-earning classes, is one which in a country such as India wholly transcends individual effort and power of resistance. It accordingly becomes a paramount duty of the State to give all practicable assistance to the people in time of famine, and to devote all its available resources to this end; and this duty is emphasized by the fact that the

Government stands in the place of landlord to the agriculturists, who form the great mass of the population. We need not entangle ourselves in vain speculations as to the point at which the consequences of giving relief on some imaginary scale of magnitude would become a more grievous evil to the country than the destruction that would follow if famine were left without relief, or with relief known to be insufficient. No such alternative is at all events at present before us.

Obligation extends to the giving relief against other great calamities.

106. It is, however, desirable to point out that an obligation such as that above stated cannot be confined to the protection of the community against the loss of life or the extreme suffering consequent on famine, but necessarily extends to the provision of similar help against other calamities, such as the destruction caused by the inundations which attend cyclones, by great epidemics, or other causes of suffering and mortality. As the gradual enlargement of the scale of relief in time of famine has followed on the more complete recognition of the possibility of meeting the evil, so, no doubt, will it be with respect to these other visitations. In the fulness of time it may be hoped that sanitary and other precautions will take a more prominent place among the practical measures by which the community protects itself against various destructive agencies, some of which are hardly less deadly than famine, though the form which they assume may be less apparent and may produce less effect on the imagination.

Necessity of administering famine relief so as not to check thrift and self-reliance.

107. To secure compliance with the second condition, which prescribes that the interference of the State shall be practically beneficial, there are certain important limitations by which the administration of relief must be restricted. The British administration of India, with so many of the latest appliances of civilization and science at its command, has in many respects fundamentally changed the position of the people for the better; it has given a check to some of the great causes of mortality at work among them, it has provided many inestimable advantages, and has added much to the power of the community to improve their condition. It must be remembered, however, that all such advantages tend at the same time to favour the increase of the population, and to add to the pressure on the means of subsistence. It becomes, therefore, especially important that the Government, when it has to deal with calamities such as famines, should so frame its measures as to avoid every tendency to relax in the people the sense of the obligation which rests on them to provide for their own support by their own labour, to cultivate habits of thrift and forethought, and as far as possible to employ the surplus of years of plenty to meet the wants of years of scarcity. The great object of saving life and giving protection from extreme suffering may not only be as well secured, but in fact will be far better secured, if proper care be taken to prevent the abuse and démoralization which all experience shows to be the consequence of ill-directed and excessive distribution of charitable relief.

Or impair the structure of society.

108. The structure of Indian society is, in some ways, admirably adapted for common effort against a common misfortune. The ordinary form of life in the Hindu family makes each individual a member of a corporate body, in whose possessions, rights, and duties he participates, and to which he is legally entitled to look for assistance in time of need. Even where the legal right does not exist, the moral obligation of mutual assistance is scarcely less distinctly recognized. Apart from family ties, there are other relationships, such as those of landlord and tenant, master and servant, employer of agricultural labour and employed, alms-giver and alms-receiver, which are of the utmost importance in binding the social fabric together, and enabling it to resist any ordinary strain. There are, too, salutary habits of frugality and foresight, the precious result of traditional experience, which have an all-important bearing upon the power of Indian society to pass comparatively unscathed through periods of dearth. Any form of relief calculated to bring these rights into obscurity or desuetude, or to break down these habits by showing them to be superfluous, would be an incalculable misfortune. In the same way anything which diminishes the reluctance which the people exhibit to accept public charity, and the eagerness with which at the earliest opportunity they recur to their own unaided labour for support, would be a certain cause of future grave evil.

The classes that suffer from famine.

109. The first effect of drought is to diminish greatly, and at last to stop, all field labour, and to throw out of employment the great mass of people who live on the wages of such labour. A similar effect is produced next upon the artizans, the small shop-keepers, and traders, first in villages and country towns, and later on in the larger towns also, by depriving them of their profits, which are mainly dependent on dealings with the least wealthy classes; and lastly, all classes become less able to give charitable help to public beggars, and to support their dependants. Such of the agricultural

classes as possess a proprietary interest in the land, or a valuable right of occupancy in it, do not as a rule require to be protected against starvation in time of famine unless the calamity is unusually severe and prolonged, as they generally are provided with stocks of food or money, or have credit with money-lenders. But those who, owning only a small plot of land, eke out by its profits their wages as labourers, and rack-rented tenants-at-will living almost from hand to mouth, are only a little way removed from the class of field labourers; they possess no credit, and on them pressure soon begins. Thus the classes who are the earliest in point of time to feel the need of relief are (1) the actually landless class who live on the wages of labour, and the smallest proprietors or occupiers; (2) artizans and small traders; (3) infirm persons and beggars who ordinarily live on the charity of the public or of individuals; and (4) the dependants of all persons who by reason of their own distress can no longer support them. These classes again fall into two chief categories: (1) those who are accustomed and able to perform work of some sort; and (2) those who from any cause are incapable of labour.

How to ascertain the proper objects of State

110. Such being the general character of the calamity to be met, and of the classes who need relief, we have to consider the manner in which the proper recipients of the public charity can be most effectually ascertained. The problem to be solved is how to avoid the risk of indiscriminate and demoralising profusion on the one hand, and of insufficient and niggardly assistance on the other—how to relieve all who really need relief, and to waste as little public money as possible in the process. In England it has been considered that the economical administration of public charity is best secured by placing the responsibility for relief directly upon those who have to pay for it, and who from their local knowledge are in the best position to judge in each particular case whether assistance is required. No such system has ever been adopted in India, or could, in the present condition of the country, be adopted without risk of disastrous failure. Again where limited numbers have to be dealt with, and there is a numerous and efficient staff of officials, it may be possible to ascertain by personal inquiry the circumstances of every applicant for relief sufficiently for the purpose of admitting or rejecting his claim. But in an Indian famine the Government has to deal not with limited numbers, but with millions of people, and the official machinery at its command, however strengthened for the occasion, will inevitably be inadequate to the task of accurately testing the individual necessities of so great a multitude. Nor again is it possible to entrust the administration of public charity to a subordinate agency without providing sufficient checks against dishonesty and neglect on the part of its members. Some safeguards then are essential in the interests of the destitute people no less than of the public treasury, and they are best found in laying down certain broad self-acting tests by which necessity may be proved, and which may, irrespective of any other rule of selection, entitle to relief the person who submits to them.

111. The chief of these tests, and the only one which in our opinion it is ordinarily desirable to enforce, is the demand of labour commensurate in each case with the labourer's powers, in return for a wage sufficient for the purposes of maintenance but not more. This system is applicable of course only to those from whom labour can reasonably be required; it provides a plain and intelligible method of relief for the great mass of the population; it affords the means of ascertaining necessity, detecting imposition, and procuring for the State some useful return for its expenditure, and it avoids to a large extent the demoralising influences of purely eleemosynary aid. It requires, in order adequately to meet the case, as will be seen hereafter, to be accompanied by various other measures of relief; but for those who are able to work, we can feel no doubt that it is the safest and most efficacious form of State help, and that, to use the language of a great administrator* of famine relief in modern times, "the best and most useful kind of alms consists in providing means of earning them." The great bulk of the applicants for relief being thus provided for, we believe that it will be possible for an efficient staff of officers to control with success the grant of relief, on the basis of personal inquiry and knowledge of the individual circumstances of each applicant, among the comparatively small numbers of destitute persons to whom the test of labour cannot be applied.

*Turgot.

The main principles of famine relief.

112. The following are the principal rules of action which we consider are most likely to conduce to the efficient administration of relief in times of famine:—

I. To lay down a definite system of procedure, to be embodied in a famine code, which the Local Governments will carry out, subject only to financial control on the part of the Government of India. At the same time to provide, by the aid of a special department of the Government, an improved system of recording information

on subjects connected with famines, and of collecting and dealing with the statistical returns relating to the weather, the agriculture, the health, and the well-being of the people, and thus to secure the most prompt and accurate knowledge attainable of a probable failure of crops, and of the extent and consequences of any failure that actually takes place. Further, to concentrate the control of the various branches of the Administration concerned in famine relief, and to render their action more efficient.

II. To provide for the offer of employment at the cost of the State to persons capable of work and deprived of the means of earning their livelihood by reason of drought, such employment being offered in time to secure them against the danger of falling into an enfeebled condition through want, and being adapted to the capacity of the labourers.

III. Simultaneously to offer gratuitous relief, as far as possible, in their villages, or, if the case shall so require, in poor-houses, to persons who in such times are left without the means of support, and are from any cause incapable of providing for themselves; attention being given to the great importance of avoiding anything that may tend to weaken the coherence of the village community, of working through the village officers or head men, where such authorities exist, and of making use of any available local help for superintending the relief operations.

IV. To organise a suitable system of village inspection and control, through which the condition of the country and the efficiency of the measures of relief may be ascertained, and defects brought to light and corrected, and the people encouraged to avail themselves of the measures offered.

V. To maintain a policy of non-interference with the ordinary operations of trade unless in some very exceptional condition of affairs when there may be evidence that without such interference the supply of food will not be maintained; but to keep a constant watch over the food supply of the people in time of threatened or actual scarcity, and to remove any impediments in the way of the free movement of trade; measures being also taken in anticipation of the time of need to extend and improve to the utmost, and in all parts of the country, those means of communication on which the distribution of the food directly depends, and those means of irrigation by which its production may be profitably increased and secured.

VI. To grant aid to the land-owning classes in two ways:

First, to relax the demand for land revenue at a time of widespread loss of the harvest, suspending it freely in proportion to the degree of that loss, on the condition that a proportionate relief is given to tenants and others who hold subordinate rights in the land:

Secondly, to give loans both to small landed proprietors who are in need of such assistance, and also to larger proprietors who may be trusted to apply the money usefully.

VII. To lay down with precision the limits within which the principle of local responsibility for meeting expenditure on relief shall be applied to provincial governments; and to require the municipal authorities in the towns, and the local committees in the districts, to co-operate in carrying out relief measures for the local population.

I.—*Improved Administration and Statistics.*

A famine code to be prepared.

113. Every Government which has administered relief measures in time of famine has felt the need of issuing general orders, both to secure uniformity of system and also to avoid the risks that would arise from any of its officers not possessing personal experience of this particular kind of work. At first orders of this description were promulgated from time to time as occasion arose, but of late years there has been a tendency to bring them into the form of a permanent code of instructions, and in more than one province such a body of rules has been drawn up. It is certainly desirable that a further step should now be taken in this direction. The duties involved in relief measures are complicated and multifarious; their successful performance necessitates the utilisation of large stores of accumulated experience and a carefully considered and prepared plan; they cannot be safely left to individual energy and resource, or be dealt with on a system improvised only when the emergency has arisen. Prompt and decided action in carrying out these measures is of primary importance, and by considering well beforehand the principles that should guide them, much of that hesitation and uncertainty of purpose, which have been found to be so detrimental in the past, will be avoided in future. We recommend, therefore, that the Government of India should, as soon as possible, issue

a set of rules embodying the main principles that should govern the administration of famine relief, and that these rules should be authoritative in all parts of British India. The broad principles being thus fixed, it would be the duty of the several local Governments to apply them by drawing up a famine code, containing detailed instructions suitable to the varying wants and administrative systems of the different provinces, and embracing, as far as human foresight can go, all matters falling within the scope of relief administration. We append to this report a draft of the rules which we suggest for the adoption of the Government of India, and a model of such a code. The latter will no doubt require modification to meet local peculiarities, but will, we trust, be of great use, since its clauses contain the pith of all the valuable suggestions that have been made to us. The local codes of famine relief should be laid before the Supreme Government, and when they have received its sanction the local Governments should be left free to act upon them, whenever occasion arises, without the necessity of any fresh reference as to matters for which provision has been made, just as they apply other rules of administration. The entire responsibility should rest upon them that everything is done that is needful in the matter of giving relief, and that, as far as the State can prevent it, no one shall be allowed to die for want of food, the only control retained by the Government of India over their measures (other than the general power of correcting errors) being the financial check over expenditure, and over the means adopted to supply the necessary funds.

Financial control

114. Such a control as this it is clearly essential to retain. So long as the cost of relief is not wholly charged against local resources, it would be impossible to permit any one province to incur on its sole authority large expenditure, to meet which it would need the help of the rest of British India, without the supervision and knowledge of the Supreme Government, which alone can impose burdens on the general taxpayer. Even if it be hereafter thought desirable to provide locally, wholly or in part, the funds required for famine relief, the same principles that govern the raising of loans or taxation for ordinary purposes of administration must be applied to this case. The limits of local authority in the matter of spending money for relief, and the occasions on which reference must be made for sanction or assistance to the Government of India, should therefore be clearly defined at the outset.

Necessity of separate Department,

115. It is not to be anticipated that any system of measures could now be framed which would secure all that is wanted in the future. What is desired is that the experience dearly bought in the past may, as far as possible, be rendered available as a guide for the future, and that a system may be established on which may be engrafted any improvements of practice which the changed condition of the country or prolonged experience may hereafter indicate to be desirable. The administration of famine relief would therefore be more effectually carried out and controlled if the measures it requires, instead of being started afresh as each occasion arises in the manner which at the moment seems most convenient, were not only conducted on a well-considered and prearranged plan, but also were placed definitely and permanently under some special branch of the secretariat, both in the Government of India and in the local Governments. Such an office in each province would have charge of all the records of past famines, and take note of all that is being usefully done or learnt in neighbouring provinces, so that the gathered results of past experience might be collected and made accessible, which has hitherto been hardly possible. Through this office should be brought together the more comprehensive and exact record of the agricultural, vital, and economic condition of the people, to the urgent necessity of which we have already drawn attention. Especially when a famine is thought to be impending would such an office become important, as it would supply the Government with all statistics bearing on this subject, and would be responsible for working out from them the conclusions on which the decision as to future action would mainly rest. When a famine is in progress, all the information relating to relief measures, their extent, their cost, their results, would be collected in it and presented in a uniform and intelligible manner, and through it all orders of the local Government relating to famine administration would be issued. A corresponding branch of the secretariat of the Government of India would occupy a similar position in relation to the Viceroy and his Council, as regards collecting and recording information, advising the Supreme Government, and conveying orders to the local Governments.

To be called the Agricultural Department.

116. The creation of such offices would not necessarily involve any great increase of expenditure; much of the work to be done in ordinary years is now scattered over several offices, and would merely have to be concentrated in one; while the needful

expansion in time of famine would be provided, as is now done, by adding temporarily to their strength as long as unusual exertion is required. As the duties to be discharged in ordinary times would mainly consist in the collection of facts relating to the condition of the agricultural community, and the agricultural produce of the country, they would almost as a matter of necessity fall within the province of an Agricultural Department, and as we are of opinion that such a department should be organised under all the Governments, we shall hereafter speak of the special office we have suggested by the name of the Agricultural Department.

Organisation for famine relief.

117. The recurrence of famine being an event altogether exceptional in its character, and taking place at irregular and often greatly prolonged intervals, we consider that the performance of the duties that fall upon the Government in relation to it must be entrusted to one of the departments charged with the ordinary machinery of administration, and the most suitable of these would be the Agricultural Department. For the same reason the administration of the measures for famine relief must mainly devolve on the ordinary establishment appointed to carry out the normal work of government in the country, and not on any special organization expressly created for the purpose; and what must be aimed at is a system which may be worked by the ordinary official staff, supplemented when necessary to meet the special circumstances of the case.

Appointment of a Famine Commissioner.

118. Experience has shown that the measures required to meet occasions of severe famine fall under so many heads and require the co-operation of so many officers in different departments of the Government, that much injury to the public interests has often arisen from want of a central authority by which the varied requirements of relief on a large scale can be considered in relation to one another, and uniformity of action secured. The gradual expansion of the measures of relief of late years, and the recognition of the liability to provide for all classes of the community in all parts of a tract suffering from famine, have left it no longer doubtful that in future, when such a calamity occurs on a large scale, a special officer should be nominated, who might be called the Famine Commissioner, in whom should be centred the responsibility for directing all branches of famine relief, under the immediate orders of the head of the local Government, and in immediate connection with its Agricultural Department. Such an officer should be specially selected for his energy and general aptitude for administration; he should, if possible, have had previous experience of famines; and he should possess the entire confidence of the local Government, so that in every case of emergency he may act without hesitation, in the full knowledge that he may expect support. He should exercise constant supervision with a view to securing uniformity and efficiency in the manner in which the code of instructions is being followed. He should be ready to move at any moment to any place where his presence is called for to originate measures of relief, to correct errors, or to meet unforeseen difficulties; and by aid of suitable reports by letter or telegraph should keep himself thoroughly informed of the whole course of events, and maintain his confidential accord with the head of the Government. The orders of the Government on all relief measures should issue under his name, and arrangements should be made to ensure their reaching the local executive officers with the least possible amount of official routine likely to cause delay, all needful care at the same time being taken to provide for their being thoroughly understood by the responsible supervising authorities.

Special activity required.

119. That relief operations in a period of extreme famine will try the administrative staff to the utmost is certain, and in proportion as the officers who compose it are energetic and intelligent will be the probable measure of their success. On such occasions the local Government should not hesitate to make whatever distribution of the officers at their disposal will be likely to lead to the best general results, and to subordinate all other considerations, however deserving they might be of attention in quieter times, to doing what will conduce most to the preservation of the people from the dangers of famine. The district officers should, on the approach of famine, apply themselves to study vigilantly the condition of the people, putting aside all less important duties which may interfere with the attainment of this object, and taking any steps that may be suitable towards procuring the best and fullest information by visiting the threatened or affected localities, making personal inquiries from the most intelligent inhabitants, and arranging for rapid and uninterrupted communication with the subordinate officials and native gentlemen. At the same time it should be the care of the Government to strengthen the hands of their district officers by a staff of special assistants proportioned to the needs of the case, and

as far as practicable to place the most energetic and efficient officers in charge of the districts or areas where famine is most severe. In the same way the officers of the Public Works Department placed in charge of relief works should be selected not only for their capacity as engineers, but also on a consideration of their knowledge of and sympathy with the people, and their powers of organization under peculiar and trying circumstances. The Commissioners of Revenue and other superior supervising staff of all departments should in like manner redouble their watchfulness, and tak special care that while they assist all subordinate to them with their advice they avoi all causes of delay in the communications which pass between the Government a the local executive officers. It should be one of the most important duties of t Famine Commissioner to see that no officer is allowed to remain in charge of a branch of the relief operations, whether in duties of supervision or in immedia management of work, or otherwise, under whom, whether from misconception o incapacity of any kind, bodily or mental, the administration of relief is not successfully carried on; and the Government should firmly support his action in this respect. It is moreover of great importance that the civil administration of the country should be so arranged that the local areas which form the units of executive authority should not be so great as to exceed the power of a single person to control effectually, and the reduction of districts to a moderate size is on this account most desirable. Any other administrative improvement which will strengthen the sense of responsibility among the executive district officers, simplify their communications with the superior controlling authority, remove friction, and expedite the transaction of business, should be sought for and carried out.

Co-operation of all departments.

120. But, apart from demands arising in relation to direct measures of relief, unusual strain will almost certainly be placed on many branches of the administration by the occurrence of severe famine. Such a time will necessarily be one of financial pressure calling for special caution in every province; additional attention will be required to the preservation of order, lest the suffering population should be driven by want to commit acts of violence. The medical and sanitary officers of Government should be especially busy in inspecting the condition of all persons in need of relief, and even in the districts not seriously affected watchfulness will be needed in respect to the public health. The dependence of an uninterrupted food supply on the efficiency of the local means of communication must not be lost sight of, and the railway administration throughout the country must be closely watched to see that all possible facilities are given for the importation and distribution of grain by their means. Where irrigation is practised from works managed by the Government increased care will be essential to secure the utilization to the utmost of the available water supply for the preservation of the food crops and for their extension as far as possible. On some of these points further remarks will be made in a subsequent part of our report, and here it is only necessary to add that a period of severe drought and famine in any part of India should be an occasion when those provinces which are exempt from the calamity should be ready to contribute all their resources to give any assistance that may be required.

Need of improved agricultural, vital, and economic statistics.

121. The efficiency of such a special department as we have proposed will depend mainly on the completeness and accuracy with which the agricultural, vital, and economic statistics with which it has to deal are collected in each village, and compiled in each sub-division and district throughout the country.

Reform among the village accountants.

122. With regard to agricultural statistics, we have shown elsewhere* what amount of information can at present be collected from the existing data, and what are the defects in the data, and in the method of preparing them. The revenue system in the greater part of British India is such as to present unrivalled means of ascertaining in the fullest manner all necessary facts relating to agriculture, and to the different incidents of landed tenures in every village; but those means have nowhere been completely utilised or made as efficient as they might be. We recommend that the body of village accountants should everywhere be put on a sound and satisfactory footing as responsible public officers, with a clearly defined set of duties, but with due consideration to the importance of their permanent connexion with their own villages; and that where, as in parts of Bengal and Sindh, the class has ceased to exist through long desuetude it should be resuscitated. Officials of this class should be appointed for all villages, whether the estates are free from assessment, or pay a quitrent, or pay the land revenue in full; and the same annual returns should be prepared for all kinds of estates, whether under the permanent or temporary settlement. The field survey, which supplies the basis of all agricultural statistics, should be pushed on

* App. No. III.

in the provinces where it is now in progress, and should be set on foot in Bengal, where hitherto it has not been introduced. In that province the expenditure, or the major part of it, should be borne by the landholders, who alone derive advantage from the increasing value of the land, and who cannot without such a survey properly perform the duties imposed on them by their position.

Supervisc of village accountant

123. Over the village accountants there should be a staff of active subordinate officers, employed in keeping them to their duty, inspecting their work, visiting each village in turn, and checking the accuracy of all the items recorded concerning it.

Special officers in each distric to supervis statistics.

124. Above these there should be a special officer in every district who would be, as a rule, of the rank of a deputy collector, and whose main or only duty should be to take charge of all matters connected with the economic condition and well-being of the people. He would test and compile the agricultural returns and examine the market prices, and ascertain from these and other data the relative value of each year's crop, according as it is below or above the average. From such a continuous record of the harvests he would obtain data for judging whether the landed classes were in a depressed or a prosperous condition, and how far they were prepared to meet a calamitous season. It would be his object to obtain similar information as to all sections of the population, and to learn what are the causes of depression, and what classes would be the first to succumb under the pressure of scarcity and high prices. The accurate registration of vital statistics and the investigation of the causes of any abnormal mortality would lie within his province, and he would be the agent of the health officer of the district for the purpose of scrutinizing the record of births and deaths. The extent of the food stocks, the ebb and flow of local trade, the current rates of interest charged on loans to different classes, the deficient or superabundant supply of any kinds of labour, and the customary wages paid to each kind—these and other kindred topics, on which information is at present far from precise, would fall within the scope of his inquiries. These officers, while generally subordinate to the collector or chief officer of the district in which they are placed, would be specially under the orders of the Agricultural Department, in respect to the system on which their returns are to be prepared and checked.

The Di of Agri ture.

125. A Director of Agriculture should be appointed in each province as executive head of this department, chosen for his knowledge of the condition of the people, and particularly of the agricultural classes. He would directly control the special statistical officers, and would be the adviser of the local Government on all matters relating to agriculture and statistics. In ordinary times he should discharge these duties and superintend all measures designed to improve the agriculture of the country; and in times of famine he would be the officer responsible for warning the Government as to the agricultural outlook, and for preparing such a forecast as should guide it in issuing instructions, and setting on foot measures of relief. A corresponding officer should perform analogous duties under the Government of India, assisting it in its dealings with the local Governments in the Agricultural Department, and in the supervision of the local Directors of Agriculture. All these officials, and a certain proportion of the special officers in each district, should have been prepared for their duties by a technical training in scientific and practical agriculture. A more detailed consideration of the measures that we suggest for attaining this end, and for originating and stimulating improvements in agriculture, will be found in another part of this report.

II.—*Provision of Relief for the Able-bodied.*

The fi effect drou to sto dema labou raise

126. The ordinary position of the country in seasons of scarcity is that, the population being for the most part engaged in agriculture, and a large section being dependent on the wages of field labour, paid either in money or in kind, a drought which more or less completely destroys the crops, somewhat in the same proportion deprives the labouring class of their usual occupation and means of subsistence. This result ensues in part directly from the fact that field labour has become useless or impracticable, and to some extent indirectly from the fact that the employers of labour lose their ordinary means of paying wages, which are derived from their produce in possession or in prospect. The stores of grain held by the landowners are in such seasons much more strictly retained for their personal wants; and the price of food rises to two or three times its ordinary rate, so that, even if the usual wage were obtainable, it would be insufficient to support life.

ity of the ate to me forward an em- yer of ur.

127. In such circumstances it becomes necessary for the State to replace for the moment, as far as may be needed, the ordinary employers of labour, and to furnish work and the wages for work to the labouring classes, with a view to enabling them to earn a livelihood so long as their ordinary occupations are necessarily interrupted. The relief thus given should be tendered promptly, and before the people have begun to lose strength from want of food, and the needful steps should be taken to induce all destitute persons able to work to come to the places where employment is offered them as early as possible. It will at the same time be necessary to see that the cost to which the community as a whole is put by the employment of persons in want is no more than the case strictly requires.

ture and ality of relief- ks.

128. The employment thus offered by the State can hardly be other than some form of simple labour, such as is required on the ordinary public works carried on under the officers of the Public Works Department. The works selected should be of permanent utility and capable of employing a considerable number of persons (a large proportion of whom would be unskilled labourers) for a considerable period of time. Their position must be regulated by various circumstances, to all of which proper weight should be given, such as convenience of access to the distressed population, facilities for the provision of food and for supervision, and healthiness of situation. The selection of these works should be the duty of the Public Works Department in each presidency or province, acting under the orders of the local Government, and that Department should be held responsible for keeping a list of such works ready to be put in hand without delay when any such emergency occurs. If possible one such work should be opened in each sub-division of a district in which severe distress prevails. It is not necessary, and may often be undesirable, to offer to every one work close to his door, but on the other hand it is unreasonable to expect people to travel great distances in order to obtain relief, or to make such a journey a condition precedent of their being received on relief works; and we think that such a test should not be applied.

129. The immediate direction of these works should be entrusted to the officers of the Public Works Department, whose special training best qualifies them for such a duty, and who would be responsible for enforcing discipline and directing the labour. It is to be clearly understood by these officers that their duty is not, as in ordinary times, to get the greatest quantity of work done at the cheapest rate, but to give effectual relief to the labouring population, inasmuch as the work is undertaken not for its own sake but for the sake of the people employed on it. Labourers of all kind and of all degrees of working capacity and working power should be received on these works if they apply for admission, and civil officers should be appointed to co-operate with the Public Works officers in classifying the labourers and seeing that they are properly paid and tasked according to their strength. The other duties of the civil district officers will be so numerous and important that it is not expedient that the ordinary relief-works should be carried on by them, unless in the case of the Public Works Department being unable to supply officers for that purpose. Work might, however, be carried on under the Civil officers for the purpose of giving employment to persons who have been in the receipt of gratuitous relief, and who, though beginning to recover from debility, are not yet strong enough to be sent off finally to the regular relief works.

on of ector ion to blic staff.

130. The collector of the district should exercise general supervision over all works, as over all other arrangements for giving relief within his district, and should be responsible to Government for their efficiency. Pending reference to the Government or other superior authority, his decision should be accepted by the Public Works officers in all matters relating to the task and wage of the people employed, as well as in opening or closing works, and generally in everything except arrangements of a merely technical nature.

ge e task.

131. It has been proved by experience that when there is little to do in the fields, large numbers of people are apt to flock to get employment on Government works although there is not any such general need as to justify the offer of work to all comers. This is particularly the case if the task is light and discipline slack, and too easy terms may even have the effect of drawing labour from its legitimate sphere, and discouraging the continuance or resumption of ordinary agricultural occupations. It is therefore necessary that proper discipline should be maintained, and that, though all applications should be received, certain self-acting tests of wage and labour should be enforced to prevent the relief work from being so light or unduly attractive as to induce people to remain who are not really in want. The wage should be adjusted from time

time so as to provide sufficient food for the labourer's support, allowing him one day's rest in the week; and separate rates should be prescribed suitable for the various classes of persons as well as for different ages and sexes. A margin should be left with the view of giving security against accidental error on the side of deficiency, not with the view of providing the labourer with the power of saving, and care should be taken that penalties for wilful idleness, in the form of deductions from the wage, should not be so large or so often repeated as to have the effect of reducing the food of the labourer below what is necessary for subsistence. The wage should be paid if possible daily, otherwise at intervals of not more than three or four days, and the payment should be superintended by a thoroughly trustworthy officer. The labour would be a task fixed according to the capabilities of the labourers, who should be divided into suitable classes for this purpose, and care should be taken to classify and employ them so as not to break up families, which should as far as practicable be enabled to work together. In apportioning the task, the fact that a large proportion of the labourers are doing unaccustomed work, that many may be physically and morally depressed, and that the disruption of their ordinary life, and the novelty of their position on relief-works probably act injuriously on their bodily powers, should be borne in mind. The full task demanded from such persons should not be more than 75 per cent. of that commonly performed by labourers in ordinary times, and from the less capable labourers a still smaller task should be required.

Piecework

132. The contract system in its ordinary form, under which the labourers become the servants of the contractor, on whom all responsibilities for their payment rest, should be prohibited on relief-works, as it is incompatible with that direct supervision and control on the part of the supervising officer, and that free communication between him and the labourers, which are essential to secure the effectiveness of the relief. The method of payment by the piece may, however, be introduced with advantage, provided that it is optional with the labourers to choose between it and the daily wage. One or more piecework gangs might therefore be attached to each large relief work, in which all who are both able-bodied and skilful labourers should be classed, and to which those who are improving in strength and skill may, if they wish it, be transferred. The rates should be so fixed (with reference to the price of food grain) as to give a little more than the ordinary daily wage in return for the quantity of work likely to be performed. Such increased earnings may tend to encourage a spirit of industry among the labourers which will be beneficial to all; but it should be remembered that it is not expedient to add to the outlay on relief, or to the consumption of food beyond what is essential, and that no object is to be gained by the early completion of any work put in hand. Again, at the end of a famine, if any able-bodied labourers are disinclined to go back to their ordinary work, a system of piecework may be used, with lowered rates, to induce them to go.

Reasons for the above conclusions

133. We have arrived at these conclusions after careful consideration of the arguments of those who advocate systems differing in some one or other respect from that which we recommend. Of these suggestions, one of the most important is that all relief works should be on the piece-work system; that work should not be employed as a test of necessity, and as a condition of relief, but that it should be offered to all persons whose labour is "remunerative," that is, labourers capable of earning a living on works carried out on the usual system of the Public Works Department, at rates adjusted to the price of food. We are of opinion that experience has proved that the portion of the population not accustomed to work for wages on public works will not spontaneously seek such employment until forced to do so by want, and that it must be anticipated that many will be reduced in strength, and, at first at all events, incapable of earning a livelihood on the public works, assuming that the work to be done to earn a livelihood by everyone must be that of an able-bodied labourer. An unusual proportion will certainly be women, and a large fraction will consist of children unfit for labour, the aged and infirm, and those who are unaccustomed to the sort of work and otherwise unable to work up to the standard performed in the case of skilled labourers in ordinary times. Any attempt, therefore, to make these classes earn their living by ordinary piece-work could not fail to result in great suffering and mortality. If to avoid this the rate be adjusted to meet the powers of the least capable, it will make the works enormously costly, or if it were adjusted to the different degrees of strength of the labourers, the result would be to introduce a variety of rates suited to varying capacities, and so end in something not really differing from task work. If again, only those who can be employed profitably on works are so employed, a great mass of people will be thrown on the Government

demanding gratuitous relief, but absolved from all necessity for showing that they are really in want. On these grounds we think that the only safe course for providing for proper management and economy on the one hand, and the interests of humanity on the other, is to give all those who can do a reasonable amount of work a task carefully adjusted to their powers, and pay them a wage on which life and health can be maintained; piece work being employed only under the conditions mentioned in the preceding paragraph, and gratuitous aid, as described in the succeeding section, being confined to those who are incapable of working.

134. A hospital should be attached to all large relief works, and care should be taken that all who fall sick on the work receive proper medical attendance and food, either as in-door or out-door patients. Attention should be paid to hutting the labourers in such a manner as to respect their feelings and the requirements of health and decency. The temporary markets attached to the works should be carefully supervised in respect to the quantity, quality, and price of the food offered. A special allowance should be made to those children of labourers who are of too tender an age for work; if possible, in the form of a diet adapted to their wants.

135. The course of events on these works should be carefully watched by the officers in charge, and periodically reported to superior authority, as it will form one of the safest indications of the degree of the prevalent distress. If works carried on under adequate precautions for discipline and for enforcing a sufficient task and wage are thronged by applicants, and especially if those applicants be persons belonging to other than the ordinary labouring classes, there will be a strong presumption that the pressure is very severe, and that still larger relief operations may be necessary. If, on the other hand, few persons apply, and if there has been nothing in the management of the work to explain their reluctance, it may be accepted as an indication that the distress is not acute. Both of these presumptions may, however, prove to be erroneous in certain cases. On the one hand, as has been noticed, there are portions of every year when field work is at a standstill, and when large numbers of the population will gladly accept work though not in distress. On the other hand, there are seasons, such as those which precede sowing or harvest time, when the people can hardly be induced by any pressure of want to go to work at a distance from their villages, and there are classes with whom apathy or ignorance will produce the same result. Conclusions founded on such evidence must therefore be drawn with much caution, and with a reference to the usual habits of the people.

136. The extent to which employment should be provided will vary according to the severity of the famine, and it is therefore most necessary that the probable extent of the calamity should be ascertained as early and as carefully as possible. If it only amounts to severe scarcity the Government will commonly find it sufficient to enlarge its ordinary works, so as to offer employment to greater numbers than usual, but without any change of system; and this, with the addition of some help in the villages to those incapable of work, will probably enable the people to tide over the season of distress. If scarcity passes into famine, employment must be offered on a larger scale on special works, such as have been described. In every case care should be taken to avoid throwing workpeople out of employ, even temporarily, in re-arranging a system of works so as to supply the wants of the country; and, as far as possible, occupation should be given on these works to skilled mechanics. A corresponding expansion must also be given to the arrangements made for the gratuitous relief of the incapable. However intense and widespread the famine may become, we believe that this system of administering relief will still hold good; even if the whole of the labouring population of a great tract of country should become applicants for employment, it should not be beyond the power of the Government to furnish work for them, provided the calamity does not find it unprepared, and proper precautions are taken in the early stages of the distress. If, indeed, it should in any exceptional case become apparent that a sufficient stock of food to feed the people does not exist in and cannot be imported into the famine tract in time enough to meet the demand for it, it may become necessary to consider whether it will not be proper to reduce the consumption of food to the utmost by stopping the relief works, and distributing to the famine-stricken population at their homes a reduced ration, sufficient only to support them without labour, and so to economise the difference between what would thus be given and what would be required to support them when engaged in labour. It cannot be said that such a condition of things might not arise in some peculiarly situated locality, and

considering its extreme gravity we have thought it right thus to allude to it, and to a possible means of alleviating it. But we do not lose sight of the risk that the increase in the number of claimants for relief thus given might in the end more than outweigh any temporary reduction in the quantity received by each claimant, and that moral depression tending to physical deterioration, which it is most important to avoid, may not improbably be produced by relief given to a large population kept in idleness. Of the reality of this last-named danger, strong opinions have been expressed by trustworthy observers of the people relieved under such conditions. It may be added that the case which is here supposed has hardly ever existed in the past, except as a consequence of want of due precaution at the outset; and that when the internal communications of the country are further improved, as we may reasonably expect them to be year by year in the future, even the few districts which are now so isolated as to be liable to a temporary inability to obtain food will cease to be exposed to that danger.

III.—*Gratuitous Relief.*

Gratuitous relief the duty of the State,

137. The duty of relieving persons other than the able-bodied was till recently considered to rest during famines, as well as in ordinary times, with the charitable public. It is only in the course of the seasons of famine which have occurred in the last eight or ten years that this duty has been accepted by the Government. It is now fully recognized that there is as great an obligation on the State to give relief to those classes that are unable to earn their livelihood by work as to give it to those that can work, when both are alike left helpless at such a time. However great be the importance of maintaining in the community at large the sense of its responsibility for supporting its poorer members, it is obvious that this duty cannot be enforced when the stress of scarcity deprives very large numbers of their usual means of subsistence, and, as a necessary consequence, of the means which they before had of supporting the infirm and helpless members of their families or their villages. But though this principle be fully accepted, the test of experience cannot be said to have removed many serious doubts as to the best mode of procedure in administering this form of relief, or to have led as yet to any such complete uniformity of opinion among the persons to whose judgment on these matters most weight attaches, as to enable us to state our conclusions without some reserve.

to be carried out by the officers of Government.

138. So long as this obligation was not recognized by the State, and voluntary relief committees, being representatives of private charity, had the distribution of food in their hands, there could be no uniformity of procedure, and no specific responsibility was placed on anyone for seeing that the arrangements were sufficient. But when the State undertook that relief should be offered to all who need it, it became incumbent on the Government to control the administration of all forms of relief, and to secure an uniform and efficient system. The voluntary aid of independent persons may be utilised, but where the State is responsible for the result it must look mainly to its own officers for carrying out its policy.

Two systems of gratuitous relief.

139. Two systems have been followed in different places and at different times with regard to gratuitous relief. Under one it has been distributed in the shape of raw grain or money at the homes or in the villages of the recipients, their necessities being vouched for by responsible village officials, and tested by suitable supervision. Under the other the people have been compelled to come to relief-centres to receive it. In this case it has generally been given them in the shape of a meal of cooked food, and has often been accompanied by the condition of residence within a temporarily arranged relief-camp or poor-house.

Preferability of relief in villages.

140. The difference in these two systems of gratuitous relief may, no doubt, be traced to the different circumstances under which they were adopted. The more stringent system, requiring residence in a poor-house, was a somewhat natural development of the efforts of private charity with limited means at its command; and the village system was an equally natural outcome of the view which regulated the relief in 1873–74, that it was requisite for the State not only to supply employment and means of subsistence to the whole population, but to import and distribute the food itself. The poor-house system has generally been followed since 1861 in the North-Western Provinces, and has been highly recommended by many authorities for adoption elsewhere. It was believed that the objection felt to residence in a poor-house might keep away those not really in want, but would not deter any who suffered from real distress. There is, however, a great accumulation of evidence to the effect that the

feeling of the people towards relief administered in this form is in most parts of India one of extreme repulsion; and that even in the North-Western Provinces in 1877–78 that repulsion was strong enough to cause many to lose their lives rather than to accept help on these terms. It was in Bengal in 1873–74 that the system of village relief first became prominent, and that indications were seen that it was preferable to the poor-house system, notwithstanding certain difficulties which attended it. Under any such system the difficulty of discriminating the worthy from the unworthy will be great; the village officials, where such persons exist, can seldom be thoroughly trusted to select the proper persons for the receipt of State help, and in the absence of some really trustworthy residents in the villages who can be employed by Government as agents in relief-distribution, there is great risk that the money or grain will not reach those for whom it is intended. Both systems might no doubt be better administered than they have ever yet been. If it is probable on the one hand that ameliorations of the poor-house system could be effected, under which its stringency would be less likely to repel real sufferers, on the other it is clear that much of the heavy cost which attended the operations in Bengal in 1873–74 is in no degree a necessary element of the village system. On the whole there is no doubt left in our minds that the village system should, in the present condition of India, be preferred for general adoption, inasmuch as, while this system may involve the risk of a too free grant of relief, the poor-house system involves the more serious risk of insufficient relief.

Safeguards with which village relief should be worked

141. If gratuitous relief is never given to those who are able to do a reasonable amount of labour, but only to the children, infirm, and old, to cripples and house-ridden people, and to those necessarily required to attend to them; and if there is an efficient system of village inspection to see that the persons on the relief list are, as far as outward signs go, deserving of it, and that they do receive it; the result will be that relief will reach the majority in the most effective way, though there may be a certain small number of people who get it improperly. With these two safeguards, the danger of the misuse of the State funds will be minimized, and the danger of imposing a test so repugnant to the people as to prevent their accepting relief will be avoided. But there will still be room for relief-houses, the proper sphere of which will be to receive such persons as have separated themselves from their homes and villages,—aimless wanderers, habitual beggars, or debilitated people who have fallen out of the ranks of the labourers and require to be fed up or receive medical attendance in order to regain strength and return to work.

Utilization of village officers.

142. In most parts of India some village organization exists which offers a ready and natural, though still imperfect, machinery for coping with famine, and it is of special importance that whatever is possible should be done towards improving and strengthening this machinery where it is present, so that it may become more thoroughly efficient for the purposes of village relief. For the future progress of the country the encouragement of the principle of local self-government, by which business of all kinds should be more and more left to local direction, is of much moment, and nowhere more so than in dealing with the relief of local distress; and, however great be the difficulties in the way of its early practical realization, it will be well never to lose the opportunity of taking any step that may lead towards it.

Details of the village-relief system.

143. The first step towards organizing the system of village relief would be to convey instructions to the head men of villages as to the classes who are entitled to this relief, and as to the manner of giving it, and to direct them, with the help of the village accountants, to draw up lists showing what persons resident in the village belong to these classes. In order to enforce this duty it will probably be necessary to provide legislative sanction in each province, under which it shall be lawful for the local Government to define who shall for the purposes of famine relief be considered the head man of each village, and to impose penalties for the failure to discharge the prescribed duty, or for any fraudulent act committed while discharging it. The lists thus drawn up should be scrutinized by the officer of the circle, who should inspect all persons on the list (except women of respectable position, regarding whom he must take other means for obtaining the necessary information), visit their houses, ascertain whether and from what cause the means of support on which they have hitherto lived have failed them, and what their actual circumstances are. He should then, if satisfied that they deserve it, place them on the village relief list, giving to each person a certificate to that effect and a copy of the list to the head village official, which should be produced before every inspecting officer. The relief should consist of a dole of grain sufficient for the subsistence of the recipient,

ether man, woman, or child, and arrangements should be made, suited to the local cumstances, to secure the receipt of this dole without fail at specified intervals of ne. In return for this dole any persons who are capable of doing a little labour, ough not fit to be sent to a relief-work, might be required to perform any light sks in the village or its neighbourhood, such as aiding in the distribution of grain, leaning out ditches, or deepening tanks, which may be useful for sanitary or other urposes, under the direction of the village head man. On the occasion of each visit rom an inspecting officer the persons on the village relief-list should be examined o see if any have become fit for labour on relief-works, and those who have become it should be struck off the list and instructed where employment will be given hem. At the same time any new person who may be found qualified for relief should e added to the list, and careful inquiry should be made whether those who are on e list do actually receive the sanctioned quantity of food.

144. In the case of those respectable women, who by national custom are unable o appear in public, and who are generally of the Mahommedan religion, personal nspection by the relieving officer is impossible, and it is necessary to employ some ther check. Committees of native gentlemen who have personal knowledge of ne circumstances of the families concerned can generally be utilised for this object, nd the circle officers should further test applications by all other information which ney can collect. The relief given to women of this class, and to their children, hould consist of doles of grain, and in return such labour as they can perform should o required of them, which may ordinarily be done by delivering to them a specified quantity of cotton to be spun into thread. Parda-nas'n women.

145. Relief-houses are intended for the reception of persons who have no homes, or have cut themselves off from their homes, and are unfit for employment on relief-works, and for professional beggars who cannot be made to work. A system of patrol should be organised to visit the lanes and byeways of towns, and the roads principally traversed by travellers, in order to bring such persons in, and prevent their dying out of sight; and authority should be given by legislation to enable Government officers to compel them to accept relief, even against their will. There may also be a few persons in the villages respecting whose necessities the circle officer cannot satisfy himself, and whom he may require to go to the relief-house as a test that they are really in need. These relief-houses should be established on the outskirts of the principal towns, in localities convenient for constant supervision by responsible civil officers. The greatest care should be taken in their management to avoid offending against popular prejudices, and this will be best assured by associating with the civil officers a body of native gentlemen who should be consulted on all matters connected with caste or social observances, and who would make it publicly known that nothing is done against which any reasonable objection can be raised. Subject to these conditions, relief should ordinarily be given in these places in the shape of cooked food, and residence within the enclosure should be enforced. The utmost vigilance should be exercised to see that the store of grain does not fall short, that the food is properly cooked and distributed, and that no fraud or mistake is allowed by which the ration can be reduced below the authorised quantity. The inmates should ordinarily be employed as far as possible in doing all work required for the service of the institution, and those not thus employed should be set to spin, weave, make rope, or to other light and profitable labour. Those who improve in health and strength should be removed, when fit, to relief works. A hospital should be attached to every large relief-house, and the ordinary residents, as well as the sick in hospital, should be the subjects of regular and careful medical supervision. Relief-houses.

146. An efficient system of village relief will, we trust, in co-operation with the other measures which we recommend, have the effect of preventing that wandering of the poor, which leads to the dissolution of the village communities, and is one of the principal causes of famine mortality. Most of those who have an interest in the land will remain in their homes without the need of other assistance than advances and the suspension of land revenue for the less substantial members of the class. The able-bodied of the labouring class with their families, so far as they are healthy and capable, should be settled on works at a moderate distance from their villages. The remaining class, the incapable poor who can offer neither security for advances nor labour in return for relief, and whom we therefore propose to supply with food in their homes, will not form a large per-centage of the population, and the timely preparation of a framework of village relief, to be administered by responsible supervisors, ranging from the European superintendent to the recognised head men and Efficie village will pr wande

IRRIGATION MAP OF INDIA

for the

REPORT OF THE FAMINE COMMISSION

1879.

Scale 128 Miles to 1 Inch.

The figures denote heights above the Sea in Feet.

REFERENCES

Country protected by canals in operation

Country irrigated by tanks

Country capable of being protected by projected irrigation works

Laccadive Islands

Minicoy I.

Longitude East of Greenwich

Trelawny Saunders Geogr.

village officers, will provide for them. Thus would be secured a scheme of rel which would give to all classes assurance of ample assistance in their own neighbourhd, and leave them without inducement to wander.

IV.—*Village Inspection.*

Establishment of a system of village inspection.

147. The opinion of all persons of experience is unanimous as to the importance f establishing a system under which there should be a constant and careful inspecti of all villages in the distressed tracts by a special staff of officers; and it is general agreed that no better example can be found of the organisation required for th purpose than was afforded in Behar in 1874. The method then adopted was to divide the country into circles of convenient size, each of which was placed under its proper officers with a regular gradation of authority, and with a clear definition of du These posts were filled by utilising the existing staff of district officials to the utm by borrowing both European and Native civil and military officers from other depa ments, and by making use of volunteers of ability and character, and especially su of the local landed and moneyed gentry or pensioners of the Government as we willing to contribute their influence and knowledge to the aid of the State.

Details of the system.

148. Such a special organisation should be created whenever the prospect of famine becomes imminent. Its object would be to obtain specific information as to the degr and locality of the distress and the classes and persons in need of relief; and to conv to the people a knowledge of the measures taken for their relief, and to encoura those who really need aid to apply for it. The inspecting officers would examine in the condition of all persons in every village, and especially of the poorest classes; they would ascertain if any are in want and have not applied for assistance, and would see that they receive it; they would also ascertain if any who have applied for relief are not in want, and ought to be struck off the list. To those who are able-bodied they would make known the places where employment is offered; and if any fail to seek work, they would, through the influence of the village head, or otherwise, encourage them to avail themselves of the offer. For those who are in want, and incapable of work, they would see that the arrangements for giving gratuitous relief are efficient, and that no unnecessary delay, or mistake, or fraud intervenes to prevent their getting it. The circles should be so constituted that the inspecting officers attached to each may be able to visit every village within a certain fixed period of time, which would be greater or less according to the degree of the distress. While making these visits the inspector would, in addition to the special duties already described, supervise the arrangements made for the supply of funds or food to meet the requirements of the people receiving relief, and would, if so directed by superior authority, carry on the necessary inquiries preliminary to the suspension of the land revenue, the loan of money to the landed classes, or other matters. Efforts might also be made to induce the agriculturists to apply themselves to the raising of quick-growing and profitable crops, and seed might be procured and distributed for this purpose where necessary.

Time of organisation.

149. The extent to which this system should be carried, and the time at which it should be brought into operation, will depend greatly on the stage and on the severity of the famine. At the earliest stage, and so long as it is still uncertain whether scarcity will end in famine or not, it will not be necessary, as a rule, to create special circles or to organise a large establishment. But on the occasion of any considerable failure of crops, such as to require the opening of relief-works, the Government should draw out a scheme for the division of the country into circles, for purposes of inspection, and should make the arrangements necessary in order to be ready to post the special staff to those circles. The first duty of the inspecting officers when appointed would be to collect all available information as to the condition of the people, to satisfy themselves as to the out-turn of the crops on the ground or those just harvested, and, after revising and verifying all previous reports, to assist the Government by their opinions as to the prospects of the country. For this purpose officials strange to the work and to the country or its language will be of little use, and it will generally be the best plan to set free the district officers from other duties, and to engage them actively in this occupation. As distress deepens the staff should be strengthened, and the areas of inspection subdivided. When famine has unmistakeably set in, and the various measures of relief are fully at work, the inspecting staff in all its grades should be constantly in motion, and the areas of the circles should then be laid out on such a scale, with regard both to the distances to be travelled and the population, that every village may be visited by a subordinate officer if possible once a week, and by a superior officer at least once a fortnight.

V.—*Food Supply.*

150. The question whether the direct intervention of Government to control or aid the action of private trade in the supply of food in time of scarcity is likely to be beneficial or otherwise, is one which has been so frequently and completely discussed that it hardly seems necessary for us to treat it at any length. Opinion has more and more steadily settled down, as economical knowledge has advanced, to the conclusion that as a rule such intervention should be avoided, but that exceptional circumstances may justify or even require it. Intervention of Govt.

151. The prohibition of exportation was in the beginning of the century looked on as the first weapon in the Government armoury, and it was suggested in 1867 in the Orissa famine, and again in 1873, in the case of Bengal; but the arguments brought against it by Lord Northbrook on the last occasion are, we think, unanswerable, and such suggestions will, it may be hoped, never be repeated, or if repeated, never entertained. These arguments were concisely summed up by the Secretary of State, who said that nothing could justify such a measure except reasonable certainty that the exports would so exhaust the resources of India as a whole as to render them insufficient to supply the wants of the distressed districts, and that no such result was even probable. Governm prohibiti of expor

152. Importation of food by Government into a distressed tract may take several forms. In its broadest form—that of buying and importing food to supply the general wants of the whole population—it is improbable that it will ever be found necessary again. It was adopted in Orissa in 1866 at a time when no other resource was available, because the discovery of the exhaustion of food stocks was made late when the setting in of the south-west monsoon rendered communication by sea too dangerous for private trade to embark in the business of importation; but had there been either earlier knowledge of the coming calamity, or better means of communication with the distressed province, the step could hardly have been thought necessary. Reasons similar to those which were held to justify the proceedings of 1866 were also appealed to in support of similar action in Ajmir in 1868, and of the much larger operations of the Bengal Government in 1874. With reference to these last, there appears to be an unanimous opinion that, in consequence of the extension of the railway system, no such measures can ever again be required in Northern Bengal. Measures which involve any large supersession of the operations of private trade must almost unavoidably be in some important respects productive of inconvenience and loss, and should not be resorted to without the most complete proof of their necessity. Govern importa of food.

153. We have no doubt that the true principle for the Government to adopt as its general rule of conduct in this matter is to leave the business of the supply and distribution of food to private trade, taking care that every possible facility is given for its free action, and that all obstacles material or fiscal are, as far as practicable, removed. The manner in which the demand for grain in Southern India in 1877 was met by supplies sent from the North showed the promptitude with which Indian trade will operate when the facilities for transport and the profit expected are adequate. The imports by sea into the distressed districts amounted, in the two years 1876-77 and 1877-78, to about 2 millions of tons.* The total quantity of grain carried on the railways in all parts of India was double this amount,† and the actual weight conveyed by them into the famine area may have been about 1 or 1½ millions of tons, in addition to the quantity brought by sea. If, as is hence probable, the total import in the year 1877 was 2 million tons, it would at the rate of 1 ton to 6 persons for a year have been sufficient for 12 million people, or one third of the whole population affected. These results were produced by the help of a system of railways, mostly single lines, and of which only one branch traversed the worst famine tract. It is only reasonable to anticipate that with every year's additional experience of the use to be made of the railways and telegraphs the activity and sensitiveness of Indian trade will continue to grow, and that with the new stimulus thus imparted to it, and the gradual extension of railways into districts where they do not yet exist, the power of meeting the wants of the population in time of local Activi privat in Ind

	Tons.
* 1876–77	750,000
1877–78	1,200,000
† 1877	3,574,000
Half 1878	1,192,000

scarcity will be still further developed. Every interference by the Governme the operations of trade must be adverse to this tendency, and prejudicial growth of those habits of self-reliance which it is so essential for Governme encourage.

154. It is to the future extension of railways that we look as the most comp justification of our belief that the trade of the country may be confidently lef provide for the supply of food in times of scarcity. Such an extension has been go on for some years past, and it will, we trust, henceforth receive an additional impet as by the help of these works alone can the whole resources of the country be broug to bear in time of difficulty on any distressed area. The charge for transport between t most distant parts of India connected by rail does not now exceed one anna per seer, or $\frac{3}{4}$ per pound, and there is reason to hope that it may be reduced to a considerably small sum. At the present rate grain costing 24 seers per rupee or $\frac{1}{2}d.$ per pound could ha been taken from Northern India to the famine districts in the south, and sold at 8 seers per rupee or $1\frac{1}{2}d.$ per pound, with a fair margin of profit. Such being the case we cannot doubt that with the growth of these means of communication and their co tinued use, all the requirements of every part of the country will be met by t natural operations of trade, without the necessity of any interference on the part Government.

155. A resolution to rely entirely on the ordinary operations of trade to meet wants of the country in time of famine must unquestionably rest, not only on expected activity of the traders, but also on the probability of the requisite supp of food being forthcoming at the critical time. The question should therefor answered, whether there is sufficient ground for believing that the quantity of g likely to be needed to meet the wants of such large areas as may be stri with famine in a single year will be certainly forthcoming. We believe that need be no apprehension as to such a provision being forthcoming in time of famine from the parts of the country not affected, though no doubt considerable pressure would be entailed on their inhabitants in proportion to the magnitude of the export. The quantity, though large in itself, bears but a moderate ratio to the whole produce of the districts in which it may be presumed, in accordance with prolonged experience, there will be no scarcity.

156. The following figures (though they are but approximate and rough estimates made from data which we hope soon to see more accurately established) indicate that the ordinary out-turn of food in British India exceeds 50 million tons, and the ordinary surplus available for storage, for export, or for the luxurious consumption of the richer classes is more than 5 million tons.

Province.	Population.	Food Crop Area.	Out-turn of Food.	Area under Non-food Crop.	Ordinary Consumption.					Surplus.
					Food.	Seed.	Cattle Food.	Wastage.	Total.	
		Acres.	Tons.	Acres.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
mjab - -	17,600,000	18,500,000	5,330,000	2,500,000	3,800,000	390,000	250,000	270,000	4,710,000	620,000
W. Provinces and Oudh.	41,000,000	31,450,000	11,230,000	5,200,000	8,420,000	820,000	830,000	500,000	10,570,000	660,000
ngal - -	60,000,000	48,000,000	17,100,000	?	13,000,000	1,000,000	1,000,000	900,000	15,900,000	1,200,000
tral Provinces	8,200,000	12,000,000	2,750,000	2,500,000	1,660,000	460,000	180,000	150,000	2,450,000	300,000
ar - -	2,250,000	3,700,000	620,000	2,800,000	400,000	30,000	80,000	30,000	540,000	80,000
pbay -	16,000,000	21,500,000	4,500,000	5,500,000	3,800,000	290,000	260,000	210,000	4,150,000	350,000
ras - -	31,000,000	26,000,000	8,500,000	2,500,000	6,300,000	400,000	440,000	420,000	7,560,000	940,000
ore - -	5,000,000	5,100,000	1,500,000	500,000	1,100,000	60,000	50,000	75,000	1,285,000	215,000
ah - -	—	—	—	—	—	—	—	—	—	800,000
Total -	181,350,000	166,250,000	51,530,000	21,500,000	37,980,000	3,450,000	3,090,000	2,555,000	47,165,000	5,165,000

The figures in the last column show the estimated annual surplus from which the several provinces, if free from drought, could supply the deficiency in provinces suffering from famine. Experience indicates that the largest area with which we may have to deal in a single year is not likely to exceed the tract affected in 1876–77, the total population of which was about 36 millions. It is estimated that in that year the crop in Bombay was short of the average by $1\frac{1}{2}$ million tons, in Madras by $3\frac{1}{2}$ millions, and in Mysore by 1 million tons; and the difference between this estimate of the out-turn in these provinces and the quantity required for a year's

consumption at the ordinary rate is $4\frac{3}{4}$ million tons. But the deficit actually to be met will be sensibly less than this amount. For a calamity of this kind immediately leads the population to reduce its ordinary rate of consumption both for men and cattle, and to guard more carefully against the waste that usually occurs. So far, too, as land remains unsown during the drought, something is saved in seed grain. From these causes the above-stated deficit of $4\frac{3}{4}$ million tons might be reduced to 3 millions. To meet this the local stocks, which there is reason to believe may commonly suffice for not less than three months consumption of the local population, are first drawn upon, and as they begin to be depleted prices rise high enough to attract supplies from distant parts of the country. When the imports from without into a famine area are very large, as in the case of 1876–77, there is a corresponding rise of price and check of local consumption established in the exporting districts also; and thus, partly by enforced economy in these districts also, and partly by the contribution of their local surplus stocks, the pressure is spread over a wide extent of country in a greater or less degree. There would thus be available to meet the estimated deficit of 3 million tons, first, the local stocks of the distressed area, which, taken at three months' supply of the people's food, amount to $2\frac{3}{4}$ millions; second, the year's surplus of the districts not affected, which, by the figures in the above table would be $3\frac{1}{2}$ million tons, but which might be expected to be larger in consequence of the diminished consumption; and third, the local stocks in those districts; and these three sources of supply, taken together, would appear to be quite sufficient to provide what was required. The yield per acre, on which the foregoing estimate is based, is derived from the local detailed reports, and is so moderate that we have no doubt that it can be maintained, or may be readily increased; and it is important to observe that the surplus which we believe to be sufficient to meet the deficiency of food consequent on the severest drought on record, or likely to occur, does not exceed 6 per cent. of the total present produce of the country.

Exports and possible imports.

157. The smallness of the export of food grain other than rice has been adduced as an evidence of the danger of trusting to the surplus produce of India for the food supply of the people. But this fact merely signifies that other countries do not consume the millets of India. The exports are consequent on the demand of foreign countries, and no country grows more food than it can either consume at home or sell to foreigners. Nor in relation to this matter should we overlook the fact that though India as a whole now produces, and is likely to produce, sufficient food for its population, in any season of drought, and that imports are not likely to be needed, supplies from other countries are certainly obtainable. The prices at which grain is bought and sold in seasons of scarcity in India, viz., from 50*s.* to 60*s.* per quarter, will generally admit of imports being made with commercial profit from Egypt and Southern Europe, as well as from the rice-producing countries east of Singapore, and might probably draw supplies from a much larger area.

Probabilities of the future.

158. Judging from these considerations we can have no doubt that the surplus produce of India, taken as a whole, at present furnishes the means of meeting the demands of any part of the country likely to suffer from famine at any one time. It must, however, be observed that the present estimated yearly surplus would soon be all consumed by the increase of population which it is reasonable to anticipate in the future, unless the production should keep pace with that increase. The agricultural and trade statistics of the past 20 years justify the conclusion that the increased production of all sorts has up to the present time more than kept pace with the requirements of an increasing population, and the known large area of land which may still be brought under profitable cultivation, and the possibilities of securing increased production by means of improved agriculture and extended irrigation, afford reasonable grounds of confidence for the future. Fears, however, have been expressed that the grazing lands have already in many parts of the country been injuriously curtailed by being turned into arable land. If this be the case there will be no means of adding to the food supply otherwise than by introducing an improved agriculture which should yield a moderate increase on each acre already cultivated, and by bringing under the plough some of those vast tracts of uncultivated land which are fortunately still available; and eventually there must be pressing need for such measures of improvement. The gradual movement of the surplus population, where excessive, to these virgin tracts, would further assure the prospects of the future. We strongly urge on the Government the great importance of these considerations.

Cases in which interference is admissible

159. At the same time that we recommend the general principle of abstention from interference with private trade in the supply of food to any tract suffering from scarcity, we admit that there are exceptional cases in which the Government may

(1.) Provision of food required for relief works and gratuitous distribution;

find it necessary to intervene. The success of relief measures essentially depends on there always being grain to be bought by those who receive money wages, and grain to be distributed to those who receive food; and it is an important duty of the Government officials who superintend the relief to see that this assumption is verified, to make all necessary arrangements with local or with distant merchants for the supply of grain, or in the last resort to lay in a stock to be drawn upon in the event of failure. This is particularly necessary in the case of relief-works, which must often be situated in localities where no arrangements for the sale of food exist. By settling down a large population of labourers in such places an abnormal demand is created which, unless local trade is very active, the Government is bound to meet by providing a special machinery for the purpose of supplying food. In districts in which communications or the means of transport are defective, or to which access by railways or by water cannot be secured at all seasons, or generally in the event of well ascertained slackness on the part of the local traders to prepare for an emergency, Government might give assistance in improving the transport or in the supply of fodder for cattle, and might encourage and stimulate trade, by guaranteeing a price for grain laid down at the more distant and inaccessible towns, or by advancing money to merchants to lay out in the trade. In purely agricultural tracts, where wages are paid in grain and not in money, and the local demand of the small towns is supplied not by imports from distant marts, but by small purchases from the stores of the agriculturists, it may happen that the agriculturists refuse to sell for fear of not having enough for their own consumption, and the local traders may be afraid to import through inexperience and the want of correspondents in the large marts. In such a case the Government would rightly intervene, and its action in importing grain from a distance might have a beneficial effect, both by proving to the local traders that such an undertaking is practicable and profitable, and by removing the panic which has led the landowners to close their grain pits. It might even become necessary for Government to import grain for sale to the public in such an event as a combination of local dealers to refuse to sell, or only to sell at prices unduly raised above the rates of neighbouring markets. In all cases in which Government intervention in the supply of food becomes necessary, the purchase, under suitable arrangements, of surplus stocks in parts of the country where they are available would secure those objects which it has been supposed could be attained by the prohibition of export. But much caution will be required in every case lest interference should aggravate the evil which it is designed to avert, and have the effect of preventing traders from entering the market while it is being operated upon by the Government.

(2.) Stimulus to trade where it is English;

(3.) Importation by Government when trade fails;

(4.) Proposal for Government storage.

160. There is another form of Government action in relation to the food supply which we have had occasion to consider with attention, and to which it is desirable to refer. It is that the Government should store grain in the periods which intervene between famines, and should thus be prepared in time of distress with a supply sufficient for the wants of that portion of the people which is likely to be affected. The probable cost appears to us to offer a most serious prima facie objection to such a proposal. For it is obvious that any system of State storage to be effectual must be continuous, and that the quantity stored must be the maximum supply that can be required on any one occasion. It implies not merely the intention to dispense with the assistance of trade in the food supply of a large mass of the people when prices are very high, but the adoption of a policy which may place such assistance wholly out of reach. The calculation of cost must, therefore, provide for the storing of the largest supply that can be needed in a season of extreme distress, and for keeping up this supply permanently. It has been estimated (see paras. 73–75 of the Report) that 7½ per cent. of the population may at any time require relief for a year in an extreme famine, and that the whole population, on the average, may be reckoned to suffer from famine once in 54 years. If it be assumed (hypothetically) that the storing is to be applied to a tract having a population of 40 millions, which is about one-fifth of the total population of India, the permanent supply stored must be sufficient for 7½ per cent. of this number, or three millions, which, at six persons to the ton, gives a total quantity of 500,000 tons. This, it may also be reckoned, will have to be replaced once in the course of 54 years, as in this period the whole population will have suffered famine, and 7½ per cent. of it will have received relief.

(5.) Probable great cost.

161. It thus appears that the actual quantity of grain required for relief for the specified population, whether it is stored or bought as occasion requires, will, on the scale adopted in the Report, be 500,000 tons for each 54 years. If it is stored, the original cost will be enhanced by interest for 54 years on the capital invested in

purchase, which will be $2\frac{3}{4}$ times its first price, and by the cost of storing, renewal to meet waste, and management, which should certainly be taken at not less than the interest, so that the ultimate cost will be $6\frac{1}{2}$ times the first cost. On the other hand, the probable cost, if the grain be purchased when it is required, that is, in a season of very high prices, could hardly exceed three times the price in a season of low prices, and on the average it would probably be cheaper than this. Consequently, so far from there being a financial advantage in the storing, it would almost certainly be more than double as costly as the purchase at the time the grain was wanted.

If we were to assume that the supply should be sufficient for the whole landless class of the same tract, or say one-fifth of the population, instead of $7\frac{1}{2}$ per cent. as before reckoned, the quantity to be stored will be 1,333,000 tons of grain instead of 500,000 tons. Therefore the true ultimate cost of the stock, at the assumed price of 5*l.* per ton, with 10 per cent. per annum added for 54 years, to cover interest and charges, would amount to about 42,000,000*l.*, or nearly 800,000*l.* yearly for the area that has been hypothetically assumed, containing one-fifth of the population of India, and therefore would represent an expenditure of nearly 4 millions yearly for the whole country. Nor should it be lost sight of that the necessity for relief may extend beyond the period of one year, for which alone these calculations provide; and to meet such a contingency a proportional increase of the quantity of grain stored, and of the sum locked up by its purchase would be required, which, if the period found necessary in Madras in 1877–78 were accepted as a guide, might add five-sixths to the amounts above named. This estimate, it must be remembered, refers to the mere cost of the food, to which would have to be added a large sum for the administrative charges connected with famine relief. Any hope of reducing the cost by laying in the stock by degrees in the course of years of plenty is obviously incompatible with the essential conditions that famine may occur in any year, and that the store must always be ready and always sufficient. Moreover, the expectation that by selling portions of the stock in years of high prices, but not of famine, a profit might be obtained, and the ultimate cost of the transaction might be thus reduced, is wholly inconsistent with the intention of keeping a reserve of food sufficient for all possible contingencies, and such a proceeding would be entirely beyond the proper scope of Government action.

Economic difficulties and dangers.

162. On the whole, any argument based on supposed economy seems to us quite untenable. If we saw reason to think that there was any probability of a failure of the food supply of the country as a whole, or of the means of its conveyance from the places where it was abundant to those where it was deficient, we might feel bound to discuss the proposed storing by Government more carefully as a possible remedy and to point out in detail the very serious practical difficulties that in our judgment would attend the attempt to carry it out. But we are satisfied that there is no such probability, and that there is no justification, either on these grounds or on the score of economy, for adopting a course which we consider to be opposed to the prolonged teachings of the past, as conveyed in the history of the progress of civilization, and of the steps by which the various States of Europe have passed from a condition of frequently-recurring famine, such as that which now characterizes India, to one in which, though high prices are at times inevitable, actual famine due to the absence of food may be said to be unknown. No Government has ever succeeded in such a measure as that which is here proposed. The repeated and continued attempts to alleviate the difficulty of securing the food supply of the people by direct State interference, which have been made in our own country and elsewhere, have always ended in failure, and the safety of the population and their freedom from extreme fluctuations of the price of bread were only assured from the time when all such efforts were finally abandoned.

Though for these reasons we do not think it necessary to discuss the matter in any detail, we may indicate that the dangers and difficulties consequent on the storage of grain by the Government would be very great, especially in respect to the manner in which the stores of grain should be utilized, and in which the Government should regulate its action in opening or closing the stores. The result, upon the dealers in grain, of the Government suddenly opening the stores when prices rose beyond a certain fixed amount, and upon the people when the stores were closed, the local trade having meanwhile been destroyed or its action paralyzed, must, we think, be disastrous.

Bad effects on the people,

163. We greatly fear that any system of Government storing, if once brought home to the people, would produce most fatal effects on their prudential habits, and that the existence of a public granary in every village, ready to be thrown open whenever distress passed beyond a certain point, would be a standing encouragement to impro-

vidence and recklessness, and to that most dangerous of popular vices, the disposition to force the Government to grant public charity. The plan would strike a death-blow at that healthy development of the internal trade of the country, now in an early stage, but steadily thriving under the encouragement given by the extension of railways and complete free trade, and it would raise a fatal barrier to the growth of those qualities of self-reliance in the community without which the country can never raise itself in the scale of civilization. Chronic famine is, we are satisfied, one of the diseases of the infancy of nations, and its remedy will never be found in prolonging the tutelage of the State, and least of all, in measures which would render escape from such tutelage almost impossible.

164. We have fully recognized the necessity for private storage of the surplus grain of years of plenty, and we have complete confidence that this is already done on a large scale. What is requisite is to encourage the practice within the limits that true economy requires, not by the intervention of the State, but by the growing intelligence of the people; and to do what is necessary to ensure the surplus thus stored being rendered available, whenever and wherever it is needed, by extended railway communication, through the agency of the natural trade of the country.

165. On the whole it is highly improbable that Government will ever be required in the future to supply food to meet the wants of the entire population of any large area in time of distress, either by way of purchase and local distribution, or by storing on a large scale. Until, however, the whole country is more completely supplied with railways or canals, by which food can be transported rapidly, cheaply, and in large quantities, in every part where severe want may exist, the possibility of some unusual demand for Government interference in particular localities or for special classes of people cannot be shut out, nor the danger of the occurrence of a great calamity altogether removed. It is therefore to the improvement of the internal communications and the removal of all obstructions to the free course of trade, accompanied by the extension of irrigation in suitable localities and an improved agriculture, that we look for obtaining security in the future against disastrous failures of the food supply in tracts visited by drought. It is not so much any actual deficiency of the requisite food in the country at large which is to be feared as the absence of the means of transporting and distributing the supply available, and the inability of the distressed population to pay for it. The failure of the stocks of food of those who habitually depend on their own harvests, and the want of employment for those who live on wages, can only be met by the offer of employment and wages wherewith to buy food, or by gratuitous relief, and the difficulties in the way of accomplishing this with a population of millions are the really serious obstacles that have to be surmounted.

VI.—*Suspension of Revenue and Loans to the Landed Classes.*

166. The duties devolving on Government in relation to the class of landholders are for the most part of a different character from those that attach to it in its relation to the landless classes, which, whenever their ordinary means of employment fail, become in danger of starvation. Those who possess beneficial interests in the land do not in time of famine, as a rule, suffer the extremity of want, or go in danger of their lives; but a large number of them are often severely pinched and obliged to borrow money for their support, and those who borrow at such a time do it on terms which make repayment difficult and may embarrass them for life. It becomes therefore the part of Government to assist such persons, who are in the position of its tenants or co-proprietors of the land, and this may best be done in two ways: (1) by abstaining from collecting the ordinary instalments of the land revenue, the payment of which must add to the difficulties of all who are hard pressed; (2) by lending at low interest the sums they require for their sustenance and the cultivation of their land, or for the maintenance and employment of their dependants.

167. With regard to the land revenue, it has been generally accepted that where settlements are made for a long period of years, an average moderate demand should be fixed which should not vary with the ordinary fluctuations of the seasons, but can and should be paid in bad and good years alike. But this applies to moderate fluctuations only, and not to years of extraordinary drought, or to cases of the total or almost total destruction of the crops which ensues from that or other calamities. Even on such occasions there are among the landowners many wealthy persons who are well able to pay, but the great majority will not have sufficient means both to pay the revenue and to provide for their own support; and to force them to meet the

Government demand could not be justified. We consider that the true principle on which leniency should be shown is this: that nobody should be forced in such seasons as these to borrow in order to pay the land revenue, but that all who can pay it without borrowing should do so. It has to be borne in mind, on the one side, that the landholder will benefit by the great rise of prices consequent on a great scarcity, so far as he still obtains a surplus of produce for sale in excess of his own wants; but on the other, when the drought is extreme no such surplus may be left, and he may even be obliged to buy food at ruinous rates for his own consumption. When the outturn is such that the landowners have any surplus to sell they can probably pay the land revenue. But when information is received from the Agricultural Department that the failure of the main crop, or one of the main crops, of the year has been so great that no surplus produce is left to the landowners above their own necessary consumption and that of their dependants, instructions should be issued to the collectors that they may at their discretion suspend till further notice the demand for land revenue due on account of the crop which has been lost, subject to such conditions as are requisite to pass on the relief to all tenants or subordinate holders. It should be understood that such suspensions ought to be liberally given to all but the wealthier individuals, and those who from exceptional advantages have escaped the general failure of the crops; and great care must be taken that the granting of this relief is not unduly delayed while inquiries are being carried on into the claims and circumstances of individuals.

Suspension of rent.

168. In granting relief by suspending the land revenue, it should manifestly be an essential condition that it is accompanied by a corresponding relaxation of the demand on subordinate holders for rent. The relief to the tenants might be secured in one of two ways; either by passing a law similar to the provision in the present rent-law in the North-Western Provinces, under which the Government might declare, in any given case, that the payment of the whole or a part of the rent shall be suspended, a corresponding suspension of the land revenue being at the same time granted to the lawful recipient of the rent; or, if such a law were thought inexpedient, by making the suspension of the land revenue contingent on the corresponding voluntary suspension of the rent. We are not in a position to say how far the extension of the principle of the law of the North-Western Provinces to all parts of India might be found practicable, but we are of opinion that the principle is equitable, and should if possible be so extended. Such an extension should provide for the relief of the tenants of all persons who, whether as grantees, inamdars, or under any other name, are entitled to receive all or any part of the land revenue, whenever similar relief is given to the tenants on neighbouring estates which pay land revenue to the Government. With regard to the question whether interest should be charged on revenue so suspended the practice varies in different provinces, and we do not think that it is needful for us to give an opinion on this subject further than by saying that if any interest is charged it should not exceed one anna in the rupee, or $6\frac{1}{4}$ per cent., and whatever rate of interest is charged by Government on arrears of revenue, the same and no more should be chargeable by landowners on arrears of rent due from their tenants.

Remission of revenue.

169. It is not expedient to remit any part of the land revenue till it becomes certain that it cannot be collected without undue pressure on the persons liable for it. The demand suspended should stand over, in the expectation of an early return of prosperity, till the Government by a special order directs its collection, or, if the circumstances are unfavourable, its final remission. The same general considerations will apply to remissions of rent as to remissions of revenue, and in no case should a tenant be relieved from his liability to pay his ordinary rent, unless his inability to do so is fully established. With regard to the realisation both of any portion of the demand which is not suspended during the time of famine, as well as of that which is so suspended and eventually has to be collected, the utmost discretion should be used; the arrears should not be exacted too promptly after the close of distress, when they can only be recovered by sale of the defaulter's agricultural cattle and implements, or of his rights in the land; and the Government should prescribe the extent to which the ordinary process of collection should be followed, or whether any special procedure should be substituted for it.

Loans to the landed classes.

170. The suspension of revenue may be an adequate relief to the more substantial landowner, who, when this drain on his resources is removed, has enough left to struggle through the time of hardship; but it does not entirely provide for the case of the small agriculturist who finds himself without the necessary means either of subsistence or of preparing his lands for tillage, and who, if he is obliged to have

recourse to the money-lender, can only obtain a loan on ruinous terms. It is moreover desirable that in times of famine reasonable help should be given to landholders to enable them to undertake works on their estates by which employment may be offered to the poorer tenants or labourers. It should, therefore, be the policy of the Government to advance money freely and on easy terms on the security of the land, whenever it can be done without serious risk of ultimate loss. The experience of the Bengal famine of 1874, and other less conspicuous instances, have shown how faithful the landed classes are, as a rule, in repaying such advances, and how inappreciable is the risk attending them when they are judiciously made. The rules under which such advances are given should admit of their being devoted to the purchase of seed grain and bullocks, and to the employment of agricultural labour. They should be made under the general supervision of the Agricultural Department, and when famine has set in, through the inspecting officer in charge of the relief circle. The grant of such loans should be regarded as of primary importance among the measures adopted for meeting distress, and should receive early and sedulous attention on the part of the local Government. No undue pressure should be used to induce the people to accept such loans, nor should they be given unless the applicant is able to show that he is in serious need of such assistance. On the other hand, after these advances have been made, care must be taken not to check the recovery of the country by a too prompt demand for their repayment.

VII.—*Local Financial Responsibility*

Localization of the cost of famine relief.

171. There are obvious advantages in so localizing the cost of relief as to bring home to its administrators a sense of personal responsibility for its amount and the burden it creates. The guarantees for economy must be incomplete so long as the incidence of the charge is spread over an area so wide that its presence becomes virtually imperceptible, and so long as those who bear it have no power to keep it within proper limits.

Advantages of this principle.

Despatch to Government of India, 25 Nov. 1875.

172. It was observed by the Secretary of State, and we think with perfect justice,* that, "however plain may be the primary obligation of the State to do all that is "possible towards preserving the lives of the people, it would be most unwise to "overlook the great danger of tacitly accepting, if not the doctrine, at least the "practice of making the general revenues bear the whole burden of meeting all "local difficulties, or of relieving all local distress, and of supplying the needful funds "by borrowing in a shape that establishes a permanent charge for all future time." * * * * * "The question which is thus raised of how to make local resources aid in "meeting local wants is no doubt one of great difficulty and complexity, especially in a "country like India. But the difficulty of providing any satisfactory solution of it "should not be allowed to obscure the perception of its vital importance to the "future well-being of the country, as well as of the troubles to the Government and "the demoralization of the people which must necessarily result from postponing too "long the introduction of some system under which shall be suitably recognised the "undoubted responsibility which rests on the people themselves to provide for their "own support and well-being. The duty of the State does not extend further than "to see that the needful means are supplied for giving effect to this principle, and "for distributing the local burdens arising from its practical application in the "manner which shall be most equitable and least onerous to those who have to bear "them." This sense of responsibility would of course be most effectually quickened by meeting famine expenditure out of the proceeds of local taxation, and by administering the relief through representative members of the tax-paying body, themselves responsible for providing all needful funds.

Difficulty of working this principle in respect to different provinces,

173. There are, however, insurmountable difficulties in the way of any but a very partial development of such a system in India at the present time. In the first place it involves the assumption that the various provinces are, on the whole, equally well qualified to bear the burden that would thus be imposed upon them. But this is far from being the case; not only are some parts of the country much more exposed to drought than others, but from the nature of the case the richest and most resourceful populations are those which are least exposed to this visitation; so that, supposing the cost of relief to be localized, the heaviest load would be imposed on those portions of the community least able to bear it. There are some localities whose physical conditions preclude the possibility of famine, and which, when famines devastate less fortunate districts, reap direct advantage from the rise in prices. Moreover, the various provinces differ much in the benefits they severally have derived from the

expenditure of the general revenues, some tracts having been secured and enriched by a large outlay of the public money, while for others little or nothing has been done; and if at the present time a strict system of localization were introduced it would have the result of still further enhancing these inequalities by freeing the more advanced and prosperous districts from a contribution which they could easily spare, and leaving the people of the localities least favoured by nature, and worst supplied with the means of resistance to meet their trials, without that support which they could fairly claim, and which their fellows have received, from the resources of the Empire as a whole. On all these grounds we are led to the conclusion that no system could be effectually and justly carried out which should impose on each province the duty of making good to the central Government the sums expended in excess of the provincial revenues on the relief of its population in time of famine.

And to the character of the men concerned in working it.

174. A danger incidental to any system of localizing the cost of famine relief in the present state of Indian society is that it would be likely to exercise a prejudicial effect on the feelings, still very partially developed, which should prompt the landowners to acknowledge their responsibility for helping the poorer agricultural classes. The general testimony is that, with but rare exceptions, the large landed proprietors have not satisfactorily realised the hopes which were formed when their position was recognised by the Government, and experience indicates the small degree of assistance given by them in alleviating the sufferings of the people. This state of things would be rendered still worse if local proprietors were made to feel that the relief of famine was exclusively entrusted to them, and that it immediately entailed additional taxation on themselves; for the Government, instead of being able to depend more fully on the co-operation of the wealthier classes in meeting distress, might find their influence directed rather to conceal it.

Modified application of the principle.

* 27th December 1877.

175. The Government has accordingly, and we think with good reason, proceeded very cautiously in its arrangements for localizing the expenditure which famines must involve. It was declared* that the local Governments should henceforth be regarded as responsible, "to the full extent of what was possible," for providing the means of protecting the people of their own provinces against famine, and of meeting the cost of relief when famine actually occurred. As to the first of these objects, arrangements were made under which a guarantee might be given by each province for the interest on the capital expended on its own railways and canals, the sources of income necessary for the discharge of this liability being at the same time entrusted to it. As to the second, it was expected that by economical and judicious control of the expenditure on the numerous branches of the administration which have been transferred to provincial Governments, a balance would be secured which would be available for purposes of relief, and that such balances standing to the credit of provincial revenues should be exhausted before the Imperial treasury could be drawn upon. But it was recognised that there was a limit beyond which the provincial revenues could not supply relief, and that resources must be created from which the central authority could supplement provincial funds on occasions of widespread and severe famine; and it was to this end that arrangements were made to secure a surplus of 1½ millions of income over ordinary expenditure, in addition to the annual surplus of half a million otherwise regarded as proper. It was determined that this surplus should not take the form of a fund specially allocated to meet the cost of famine relief, because such an arrangement would be financially inconvenient and objectionable. The intention was simply that a source of revenue should be provided which would enable the Government to carry out the principle on which it had for some years insisted—that the relief of famine distress must be regarded as a charge constantly liable to recur, which must be met like all other obligatory items of State expenditure. The money obtained, or so much of the 1½ millions as remained after meeting charges for famine during the current year, was to be applied to the discharge of debt, or the prosecution of remunerative public works of a character likely to give protection to the country against the effects of drought. Such works might be expected to produce an income equal to the interest on the capital spent on them, and thus lead to a result financially identical with the discharge of debt, but otherwise more beneficial from the protection given by the works. As the Government was engaged in carrying out productive public works, the expenditure on which involved annual loans to the extent of 3 or 4 millions, the plan practically operated in reducing, to the extent of the surplus, the sum to be thus borrowed.

Sufficiency of this system.

176. We see no reason to doubt that the general arrangements thus made were in the actual circumstances well suited to meet the difficult problem that had to

be solved, nor is it easy to see how such heavy and irregularly recurring charges as those that arise from the relief of famine on a great scale of severity and extent could otherwise be met than by borrowing when the calamity occurs, and by discharging the debt in times of prosperity, or securing such an increase of revenue from productive works as shall cover the interest on the debt.

How far provincial revenues can meet expenditure,

177. The extent to which the provincial revenues at the disposal of the local Governments will enable them to meet famine expenditure is a subject on which we need not enter at length. In a time of exceptional financial pressure, such as every period of famine must be, there can be no question that any outlay which is not obligatory should be postponed, and so far as the ordinary and necessary expenditure on public works can be directed to the relief of persons in distress, this also will be advisable. The extent to which aid from the resources of the central Government should be given, will have to be determined as each case arises, and there can be no doubt that in all cases of severe drought this liability will occur.

Or be used to guarantee interest on protective works.

178. There is, however, one direction in which the responsibility and power of usefulness of the local Governments could be enlarged in respect to famine relief. The surplus created for famine purposes may, under existing arrangements, be applied to the prosecution of public works likely to mitigate the consequences of famine, whenever the income of those works can be reasonably expected to cover the interest on their cost, and thus to secure the Government from charge on their account. In extension of this policy, we think that all reasonable facilities should be given to the local Governments to undertake works likely to protect their provinces against the results of famine, even if not of a character to be immediately remunerative, in every case in which they can secure the Government of India against eventual loss by the specific allocation of some part of their provincial revenues. Nor does it appear to us in any way objectionable in principle to levy special local rates or cesses either on a whole province or some smaller area, in order to provide a fund from which such guarantee may be obtained.

Employment of local funds to extend communications.

179. The future power of the country to resist the pressure that arises from drought is so immediately dependent on the improvement of the means of internal communication that it is in our opinion impossible to exaggerate the importance of striving to accomplish this in every practicable way, and the arrangements above indicated afford an obvious and easy method of extending the application of local resources under local financial responsibility to this paramount object. During the late years of famine India was saved by its railways from disasters, the bare possibility of which should serve as a warning not to postpone the extension of works of this class to which the country must mainly look for alleviating the horrors of famine.

Application of this suggestion to Madras and Bombay.

180. In Madras and Bombay, the natural features of which provinces add much to the difficulties of transport, such works are more especially necessary. The additional rates on land, which were imposed in Northern India in 1878, and in Bengal in the previous year, and which constitute one of the chief sources of the famine surplus of $1\frac{1}{2}$ millions, were not extended to Madras and Bombay, partly for reasons which had reference to the position of those territories at the moment. The question now presents itself whether there still are grounds for considering that these provinces should be exempt from the burdens which have been imposed on the land elsewhere to aid in meeting the liabilities caused by famine expenditure, though, as the effects of the recent scarcity had not passed off in 1878, and as the equalization of the salt duties then effected led to their increase in Madras and Bombay, it was naturally thought inexpedient at that time to extend the additional rates on land to these provinces. If the Government should be of opinion that the time has come when these considerations may be regarded as no longer operative, and that the additional rates could be imposed without placing undue pressure on the landholders, we think that the early adoption of such a measure would be expedient, and that its efficacy would be secured and the objections to it diminished by providing that the income obtained should form an addition to the provincial revenues, to be specially and exclusively devoted to the prosecution of such works of a protective though not financially remunerative character as may be approved by the local Governments in those provinces, and to be applied either in the form of direct grants, or of a guarantee to the Government of India of the interest on the capital provided by it for these undertakings.

Financial responsibility cannot be

181. If the difficulty of extending financial responsibility for famine expenditure to the provincial Governments is extreme, it becomes insurmountable, in the present

condition of India, when we descend to the smaller local divisions of the country, such as districts, local fund circles, or municipalities. To admit of any steps being taken to impose on the tax-payers within such areas the duty of paying for the cost of famine relief locally incurred there must manifestly first be introduced into India a law of settlement, under which no applicant should be entitled to relief except in the district or other area to which he is properly chargeable. This would be peculiarly necessary in the case of municipalities, which are liable to be crowded in times of distress by an influx of strangers, the cost of supporting whom could not justly be imposed on municipal funds. We are unable to suggest any system under which so artificial and necessarily complicated an arrangement could be carried out. Nor are there wanting other grave causes of doubt as to the expediency of attempting anything like the framing of a poor law for India. The doctrine that in time of famine the poor are entitled to demand relief from the funds of any definite area would probably lead to the doctrine that they are entitled to such relief at all times, and thus the foundation would be laid of a system of general poor relief, which we cannot contemplate without serious apprehension, and the adoption of which could hardly be advocated unless on proof of its absolute necessity. It would be in a high degree impolitic to introduce the idea that relief of the poor in ordinary times is a regular part of the duties of the State in any of its departments or branches, or to depart from the broad principle that it is only in exceptional seasons of difficulty that State relief should be given.

extended to areas smalle than a province;

182. But without going so far as to enforce financial responsibility, we think it highly desirable to impose executive responsibility on municipal committees and local district organizations, and so to enlist their administrative aid in the actual management of relief under Government supervision. We consequently advise that where these institutions exist it should be made a recognised part of their duties to co-operate in famine relief, and that so far as practicable the public works which they are in the habit of carrying out should in time of distress be made the means of adding to the employment of the part of the population requiring help. The municipal authorities should be responsible for carrying out all relief measures necessary within their limits, receiving from the Government such pecuniary aid as may be requisite for the proper fulfilment of the duty. From the completeness of their organization, their local knowledge, the comparatively small area within which they act, and the strength of the available staff, it should follow that relief measures ought to be conducted in municipalities with great efficiency.

But executive respon sibility can and should be extended

VIII.—*Miscellaneous.*

183. A few points remain which cannot well be brought under any of the foregoing heads, but which we consider of sufficient importance to be mentioned here among the main rules of action which should be followed in times of famine.

184. One of these is the amount of food required by workers and non-workers. The conclusion we draw from a careful examination of the evidence of authorities in all parts of India is, that on an average a ration of about $1\frac{1}{2}$ lbs. per diem of the meal or flour of the common coarser grain of the country suffices for an ordinary working adult male. In the rice-eating countries an equal weight of rice may be accepted in lieu of flour, and in any case the ration should include a suitable proportion of pulse. A man doing light work would require about $1\frac{1}{4}$ lbs.; and the ration which consists of 1 lb. of flour with a little pulse has been found sufficient to support life in numerous relief-houses, where no work is exacted, all over the country. On these bases the diet scale should be built up, it being understood that a female requires a little less than a male, a child below twelve years of age about half the allowance of an adult male, and a non-working child below six or seven about half as much as a working child. On relief-works, however, where a money wage is given, the rate of pay should be such as to leave a slight margin above the actual cost of the flour, so as to allow for the purchase of salt, pepper, and other condiments and firewood, and to avoid the risk of the wage being insufficient to purchase the full ration of food. Whenever it is necessary to supply people with a kind of food to which they are unaccustomed, the result should be carefully watched, and endeavour should be made to counteract, by some adjustment of the dietary, the unfavourable results which will probably arise from the change.

Amount of food required.

185. As to that class of applicants for relief which consists of small artizans, who in a time of famine can get no employment and find no market for their productions, the question arises whether and how far it is possible to give them employment in

Employment of artizans.

their own walk of life. This is certainly desirable, if it can be done conveniently; but if the number in these classes is small, and the time and labour necessary for making arrangements for their employment in special trades would be better spent on matters affecting large masses of people, then the interests of the majority must prevail. Blacksmiths and carpenters and to a less extent bricklayers and masons and other crafts would find employment on public works. Weavers are the most numerous class among artizans who habitually require relief, and much employment has in many instances been given to them in their own trade. The thread which is spun by impoverished females in respectable families can be given to weavers to turn into cloth at rates corresponding to those of the market, and the cloth thus woven can generally be disposed of in the relief-houses and hospitals. If there is any surplus at the end of the famine it should be sent for sale to some distant market, so as not to interfere with the local sales and deprive the weavers of work when times begin to improve. The other artizans who require help, such as potters, tanners, &c., are generally too few to be employed in their trades without putting more urgent work aside; and in such cases all that can be done is to offer them employment on the relief-works, and in very few cases will such work be inappropriate to their ordinary habits.

Orphans.

186. In all great famines large numbers of orphaned or deserted children have been left in the hands of Government. Till lately the practice has been to make them over to orphanages established by Missionary Societies, in which the children are brought up as Christians. Objections have of late years been urged to this practice: and an alternative plan has been followed of making them over to Hindus or Muhammadans who have applied to receive charge of them. We conceive that, as matters now stand, both these systems must be adopted, but the latter one should have the preference as far as it is possible to carry it out. The State should not take advantage of the helpless position of such orphans to encourage proselytism, but it is bound to make due provision for their moral and physical welfare. Supposing there are rival applicants for the care of a Hindu or a Muhammadan child, the person most entitled to receive the child would be a co-religionist, provided he is of such respectability and character as will give security for the proper bringing up of the child. But there have been so many cases of such children being brought up to a life of prostitution or of semi-domestic slavery that an officer would not be justified in making over a child, especially a female child, without inquiry, to any applicant who may appear. Muhammadan families, among whom there is no question of caste, will generally be found ready to receive Muhammadan children, but for low-caste Hindu children suitable applicants will rarely come forward, and such children will generally remain on the hands of the State. Efforts should be made to induce respectable and charitable persons to adopt the orphan children, in preference to any other course; but when these have been exhausted the children may properly be entrusted to any well-conducted orphanage under due supervision, and with the proviso that they should always be reclaimable by their parents or by near relations who may have a right to demand the care of them.

Private charity.

187. Native society in India is justly famous for its charity. It is owing to the profound sense which is felt by all classes of the religious duty of succouring, according to their means, the indigent and helpless who have claims on them as members of the family, the caste, or the town or village, that in ordinary times no State measures of relief are needed. Native charity, however, does not work according to the English pattern. It does not tend to organization or co-operation among those who bestow it; it consists too much in giving a small dole to numerous applicants rather than in providing completely for the wants of a few applicants. When scarcity increases and deepens into famine, this liberality naturally decreases with the diminishing ability of the well-to-do classes to give, and at last it almost comes to an end; while the number and the wants of the applicants rapidly increase. Such charity is to be encouraged at the beginning of distress; and in a slight scarcity which does not grow to a famine it is often sufficient to meet all local requirements; but when famine has once set in with severity it may become a serious evil unless it can be brought under some systematic control. The rumour that doles of food or money are liberally given in any town penetrates into the country, unsettles men's minds, and makes them disinclined to honest exertion. When they flock to the town the want of organization results in the stronger paupers getting more than the weak who need help most, and sometimes in the latter being deprived altogether of their food. The element of chance which this system contains, under which more than is necessary for subsistence may be

obtained one day, even though less may be obtained another day, is more attractive to many paupers than the regular distribution of the bare means of subsistence; and this uncertain and unequal provision of food often leads to disease and death. When once Government has taken the matter thoroughly in hand and provided relief in one shape or another for all who need it, and a proper inclosed place of residence for all casuals and beggars, street-begging and public distribution of alms to unknown applicants should be discouraged, and if possible entirely stopped.

Utilization of public subscriptions at the close of a famine.

188. Under the system of Government relief which recognises the responsibility of the State to provide for all who really require relief, there does not appear to be any reason for making an appeal to the public to aid the Government by their contributions. This is a relic surviving from a past state of things, and is unsuitable where efficient relief measures are carried out on a uniform plan designed to give security to the whole population, at the public cost, and on the responsibility of the Government. Such full responsibility having been accepted, the spontaneous contributions of private persons, given for the purpose of supporting the lives of the famine-stricken, are as much out of place as they would be in meeting any other public charge; though something may still be done towards supplementing the subsistence ration of Government with small comforts, especially in the case of hospital patients, of orphans, and of the aged and infirm, and any charitable assistance of this kind should be welcomed and encouraged, provided it is so administered as to work in with the Government organization and system. But when the famine is coming to an end there is a wide and useful sphere for private charity in restoring the sufferers as far as possible to their original position, or in giving them a little capital with which to start again in their old modes of life. This was done with excellent results, by the aid of the munificent charity of England, in Madras and Mysore at the close of the famine in 1877–78. The State cannot properly expend the money raised by taxation on such objects, though it may certainly lend its officers to assist in the work of distributing charitable contributions in the most useful way. Subscriptions raised at the end of a famine for the purpose of restoring his bullocks to the cultivator, his implements to the artizan, or of giving a little money to a petty shopkeeper to get together the articles necessary for his stock-in-trade, if disbursed by competent and judicious persons, would be of the greatest benefit in assisting the population to recover from the blow they have received.

Treatment of subjects of Native States.

189. With regard to the treatment of the subjects of Native States who may apply for relief in British districts, three courses have at times been followed. The usual one has been to make no distinction as to origin, but to treat all comers alike without inquiry. In the late famine in the south, in some cases such immigrants were separated from the local poor and sent back to their own country, or the State to which they were believed to belong was requested to send an officer to identify and take back its subjects. A third course was advocated by the Government of Madras in 1877, that a list should be kept of such immigrants and the bill for their support should be sent in to the State from which they came. We consider that the first of these three courses, that of treating all applicants for relief alike, whatever their nationality, is the right one. The attempt to discriminate cannot be successful, for as soon as the people learn its object they deny their true origin; and the attempt to relegate them to a country from which they fled because they dreaded starving in it, may be both futile and cruel, and will probably only lead to increased habits of wandering. The British Government might with propriety endeavour to induce the Native States to take proper measures for the relief of their own poor, as far as possible on the general system adopted in British territories, and the records of successive famines show that Native Rulers are becoming more and more alive to this duty, and ready to perform it. It will be for the Government of India to consider what degree of responsibility, pecuniary or otherwise, may attach to any State which neglects this important duty, but beyond this no further question should arise as to whether applicants for relief are emigrants from Native to British districts, or from British to Native districts, or from one part of the British territory to another.

Migration—(1st) to preserve the cattle;

190. The history of Indian famines shows what a large part local and temporary migration plays in the measures which the population of India take to protect themselves in time of famine; and it is necessary to consider what the policy of Government should be as regards controlling it or working it into the general relief system. There are two main kinds of migration to be dealt with. One is migration for the sake of cattle, to find pasture; the other for the sake of the emigrant's own safety, to find food or employment; and there is a third or spurious kind, viz., aimless wandering. Of the first kind of migration we have

examples in the famine of 1868, when herds of cattle were driven from Western Rajputana to Malwa, Central India, and the Sub-Himalayan pastures; and in 1876–77, when the cattle of the Deccan, Mysore, and Madras, were driven to the forests on the Western Ghâts. Such migration is purely beneficial to those who start early enough on the quest; and though it often entails great losses on those who start late and arrive when all the best pastures have been occupied, the loss would probably have been as great had they remained at home. All that Government can do here is to aim at some control over the distribution of the incoming cattle, to open one tract after another as the first becomes filled, and to disseminate information as to the best roads to be taken. It may be useful also to adopt the course taken by the Bombay Government in 1877 to facilitate the transport by rail of cattle travelling towards the pastures, and to place fodder for sale along the most frequented roads, though the latter measure proved to be unnecessary.

(2nd) to preserve human life;

191. The second kind of migration is meant to be either permanent or temporary. As to permanent emigration, there is always in famine years a considerable increase to the normal number of voluntary emigrants to the colonies and elsewhere; but the efforts made by Government to stimulate this (as in Behar in 1874, and Madras in 1877) have been extremely unsuccessful. The class of people with whom Government has to deal in its relief measures are not the class most suitable for permanent emigration to a distance, or most likely to undertake it. The true emigrant class, should be, and as a rule is, composed of the stoutest and most self-reliant; while the class most requiring relief are the weakest and least self-supporting of the population, and peculiarly open to panic and to suspicion of the motives by which the Government is influenced. It is difficult, therefore, for Government to include permanent emigration among its relief measures in time of famine. The question how far emigration may be looked on as a safeguard in the future against over-population will be considered in the second part of our Report. As to temporary migration, there is commonly a great readiness to flock to any place where there are hopes of employment and food. Thus in 1877 the numbers who travelled to the coffee plantations of the Nilgiris, the Wynad, and Coorg, and to Ceylon, in the hope of getting employment were very large; and in all famines the tendency of beggars to collect in towns has been remarked. It has frequently happened that the numbers thus migrating have far exceeded the powers of the country or town into which they penetrate to afford them employment or food, and great misery and mortality have ensued. Attempts have been made to prevent such migration, either by stopping the people on the roads or drawing a cordon round the town, or by relegating them to the country from which they came. These measures have generally been unsuccessful, and have often caused as great misery as that which they were meant to prevent. It is to be hoped that the arrangements we have suggested for village inspection and relief will obviate to a great extent this tendency to migrate, but should it still arise, efforts should be made to discourage it by spreading information as to the condition of the tract to which the tide is setting, and to arrest the movement at its outset. The only steps that can usefully be taken beyond this are to provide the usual measures of relief, such as relief-works and relief-houses, in the most suitable places where such immigrants collect in large numbers.

(3rd) Aimless wandering.

192. The evils of the third kind of migration—aimless wandering—have been keenly felt in the recent famine in the south of India; and the Bombay Government has sought for legislative power to enable its officers in such cases to make the acceptance of relief compulsory. It is evident that such power, if given, should be carefully limited, as it might be used so as to cause a panic, and to make the State relief unpopular; but we believe that if used with discretion, and confined within narrow limits, it would be useful. The power, indeed, has been assumed as a matter of necessity by many discreet and humane officers; and if in doing so they have gone beyond the law, the law should be amended so as to cover such acts. No such power, however, should extend to people who persist in remaining in their houses, even though they may appear to have no means of subsistence there; it should be confined to those who have cut themselves off from home, and who are either wandering along roads or begging in towns. Such persons may with propriety be conducted, even against their will, to relief-houses or relief-works, according as they are unable or able to work.

How to meet cost of improved administration.

193. In concluding this portion of our Report we desire to explain that we have intentionally avoided any attempt to make a particular estimate of the probable cost of the administrative measures suggested for the permanent improvement of the

statistical records and the creation of a more effective Agricultural Department, and it will suffice for our present object if we state that we think it unlikely that the additional yearly charge caused—if these suggestions are adopted—would materially exceed one hundred thousand pounds. No useful purpose would be gained by our offering an opinion as to how far any additional charge for such objects might properly be regarded as merely involved in the necessary improvement of the ordinary administration, or how far it should be held to be a measure connected with famine relief, and so fairly chargeable against the special famine surplus. Even if the latter view be adopted in respect to the whole charge, the practical efficacy of the financial measures of insurance adopted in 1878 will not be impaired. Should the net surplus, after meeting these extra charges, be no more than 1¼ millions, there would still be provided the means of discharging 12½ millions of debt in 10 years, and thus of reducing the net yearly charge for interest by more than 500,000*l*., an amount which, according to our calculations, will be amply sufficient for the prevention of any increase of the permanent debt by reason of the expenditure on famine relief.

194. We consequently have no hesitation in commending to the favourable consideration of the Government the measures which have been detailed in our Report, in the confident belief that the necessary charge they may involve, so far from leading to any financial inconvenience, will be followed at an early period by material improvements in the country, which will not only add directly to its present resources, but increase its permanent power of contending successfully with the terrible scourges of drought and famine to which it must ever be liable. Conclusion.

RICHARD STRACHEY.
JAMES CAIRD.
H. S. CUNNINGHAM.
H. E. SULLIVAN.
J. B. PEILE.

July 7, 1880.

Dissent on certain Points from the Report of the Indian Famine Commission.

We think that a more simple principle of treatment for a famine-stricken region than that set forth under heads II. and III. in this Report would better secure the saving of life and the maintenance of order, without an undue pressure on the resources of the State, with less dislocation of official duties, and no disruption of the mutually helpful bond of village society. The people of England can hardly realize the loss by death in the last Indian famine. Upwards of five millions of human beings, more in number than the population of Ireland, perished in that miserable time. If the people of this vast metropolis, with the millions in its neighbourhood, were all melted away by a lingering death, even this would not exceed in numbers the loss of India. A result so fearful in extent, and so heartrending in its details, was brought about by want of timely preparation to meet a calamity, which, though irregular in its arrival, is periodical and inevitable.

Famine Administration.

Timely preparation indispensable for the successful treatment of famine.

1. The great difficulty hitherto felt in famine administration in India has been in the disorganization arising among multitudes of people, landless labourers and their families, suddenly deprived of their usual employment, without stores of food, who, when the last measure of grain is reached, break away from their villages in despair, and "wander" in search of food or employment. The attempt to cope with this, in dealing with millions of people, without due preparation, overtaxes the working power of the State and has led to frightful confusion, waste, and expenditure, and to untold misery and death.

The cost of relief so moderate as to admit of no financial excuse for famine deaths.

2. The estimate made in Section 75, page 26 of this Report, shows, from past experience, that the largest population likely to be severely affected by famine at one time may be taken at 30 millions, 10 per cent. of whom we may reckon it may be necessary for the State to relieve for an average of a year. The cost of this for 3 millions of people, at 3*l.* a head, at famine prices, would be 9 millions, and this would provide relief on a scale double that given in Madras and Bombay in 1876—78. As famines of this magnitude have not occurred at an interval of less than 12 years, it would appear that the annual reserve fund of 1,500,000*l.* now made by the Government, if so applied, should amply suffice to meet this calamity. On the Indian population this would be an extremely small expenditure on poor relief, not one fortieth part per head of that of the United Kingdom. The amount is so moderate that if acute distress, and its consequent terrible mortality, can be prevented by such an insurance fund, no financial excuse can be admitted to justify famine deaths. Nor should any practice be adopted which needlessly aggravates the distress, or is likely to lead to increased mortality.

The first object of famine administration should be the saving of life, and the mode by which that has been most successfully accomplished.

3. We will assume that the first object of famine administration by the British Government in India will be to save life. In all the famines on record which have occurred in India, that of Behar in 1874 is the only instance in which this object, though at an excessive cost, appears to have been satisfactorily accomplished. There was early and active intervention by the Government in securing an assured supply of food. No distance or other tests were used to repel the needy applicant for work or aid. The village system was as

much as possible left undisturbed. Useful work was found for the capable workers of the population, and the infirm and really necessitous, who could not work, had food distributed to them in their villages by the local authorities, under proper supervision. The small landholders, to the number of several hundred thousands, received advances from their superior landlord, the Government, to tide them over the worst of the time, and nearly the whole of these were recovered. The collection of revenue was promptly suspended, and some proportion of it afterwards altogether remitted.

Mode of treatment suggested,—

4. If an adequate and timely supply of food has been arranged for, either by importation from other parts of India or private storage in localities difficult of access, we should divide the people needing relief into two classes, those capable of doing remunerative labour, and those who are not. The general testimony of the officers of the Public Works Department shows that remunerative work can only be got from persons in bodily condition capable of labour. The class who suffer most from famine are those who have no land, field labourers, weavers, and village artisans. When employment fails them they have no margin to fall back upon. It is essential to their safety, therefore, that when ordinary sources fail Government should have employment prepared for them. In those districts of the country which are periodically subject to famine permanently useful works of public utility should be prepared, to be then ready for execution. On the approach of famine, these should be thrown open to all capable workers, under the superintendence of the Public Works Department. No test would be required, as a full return in work would be given to the Government for wages paid by the "piece" system, the ordinary rates being paid, on a scale adjusted in accordance with the market price of food. The works would thus cost, to the extent of such variation, more than if carried out during times of average prices, but otherwise the cost of supporting this class through the famine would be repaid to the State by the value of the works of utility executed. This class, as it would include also the blacksmiths, carpenters, bricklayers, and masons, who could exercise their calling on the public works, would probably comprise two thirds of the people requiring the help of the State, if measures are taken at an early period before the people have become emaciated.

1. For those capable of labour of a remunerative kind, under superintendence of the Public Works Officers

2. For those not capable under village headmen, officially supervised.

5. To the remaining third, the persons who from age or infirmity, or being unfitted by their normal occupation, or other sufficient reason, for doing remunerative field work, food should be gratuitously supplied in their villages, on the lowest scale sufficient to maintain health, without exacting other labour than such sanitary or other light work as could be advantageously done near their homes. The administration of this, under official supervision, should be laid upon the village headmen and owners of property; and, in order to enlist their careful management, a proportion of the cost of the gratuitously supplied food might, where the ordinary circumstances of the people would admit of such a course, be repayable, by instalments, to the Government, by a rateable charge on the property of the village. By distributing the responsibility in this way the relief work would be comparatively easy, as in each village the number to be thus relieved would not exceed three to four persons in each hundred of the population.

Orderly manner in which each class would thus be treated.

6. The labouring class would thus be dealt with promptly, in an orderly manner, free from confusion and panic,—the capable workers passing at once under the charge of the professional superintendence of the Public Works officers,—and the weakly class remaining at home under the charge of the village officials, to whom they are individually known. By thus employing the capable workers, and maintaining the village organization, the distance and other tests, which proved fatal to hundreds of thousands of starving people in the last famine, would be rendered unnecessary.

3. The landholders to be under the care of the Revenue Officers, who should have power to make advances, and suspend collection of revenue.

7. The small landholders, and all of the landed class who stood in need of temporary aid, would naturally be under the care of the Civil officers of the Government, who should be authorized to make advances in money or food as they might deem necessary and judicious, and on the same principle to suspend for a time the collection of the revenue. If some portion of this

class desire to earn wages, they should be received on remunerative works without hesitation.

8. It is to meet the case of the incapable workers that it is recommended in the Report to retain the unsatisfactory "task-work" system, by which strong labourers are restricted to a limited amount of work, and the weak are compelled to fulfil their task under penalties sometimes dangerous to their lives to enforce —and also to employ the requisite accompaniment of "task-work," the complex machinery necessary for the prevention of fraud; a system which assimilates the unfortunate recipients of relief to gangs of convicts sentenced to hard labour, and the engineers in charge to jail warders. This "task work" system must not be confounded with "piece work," from which in India it has a quite different signification. If the distress consequent on famine is grappled with at an early period, before the people have become emaciated, the number of these incapables will be comparatively small, and the method of dealing with this fraction of the community, at once the most economical and the most humane, will be to admit them to almost gratuitous relief, administered on a scale sufficient to maintain life, but insufficient to attract wilful idlers.

Grain Storage.

9. Although the principles laid down under head V., pp. 49—54 of the Report, in regard to the action of Government in relation to the food supply, have our general concurrence, we are unable to adopt the views which find expression at paras. 160—164, inasmuch as the evidence which we collected has led us to form the opinion that, under present conditions, it might be not only expedient, but absolutely necessary, for the State to make provision in the manner condemned by our colleagues. There are certain localities in Southern, Western, and Central India which are now, and may continue to be for some time, distant from the lines of railway communication, and which are in an especial degree liable to visitations of famine. For these comparatively inaccessible tracts, which we may reckon at one fifth part of India, with a population of 40 millions, we suggest a plan of storage to show that the measure is not the financial impossibility indicated in the Report, and if our views as to its necessity be accepted, we recommend its being adopted tentatively on a limited scale, leaving the extension of the operation to be decided by the success or otherwise of the experiment. We are unable to place confidence in the Table at page 50, which shows an estimated annual surplus yield of five million tons of food grain. The average annual export of rice and grain from all India is one million tons, which should thus leave four million tons to be laid by, a quantity sufficient to feed 24 millions of people. As famines come but once in 12 years, there should in that period be an accumulated surplus sufficient to feed nearly 300 millions. And yet when famine does come, and then affecting at its worst not more than a tenth of that number, it is only by immense pressure on other parts of India, and at a quadrupled price, that the barest sufficiency of supplies can be obtained. This seems a clear proof that the alleged surplus must be greatly over-estimated. Considering, also, the admittedly "approximate and rough estimates" on which the belief in this surplus is based, and the exhausting practice of agriculture so generally followed in the cultivation of dry grain in India, we are unable to concur in the statement that "India as a whole now produces, and is likely long to pro-"duce, sufficient food for its population in any season of drought." The "prolonged teachings of the past" referred to in the Report are, as far as that country is concerned, wholly against such a conclusion. Population is increasing, the price of food is rising, the production of it as shown by exports scarcely advances, whilst, as the number of the landless class who depend on wages is constantly growing, the supply of labour in the absence of industries other than agriculture must soon exceed the demand. Already their wages bear a less proportion to the price of food than in any country of which we have knowledge. The common price of grain in the Southern States of America on which the free black labourer is fed, is the same as that of the Indian labourer, viz., 50 to 60 lbs. per rupee. But his wages are eight times that of

the Indian, 2*s.* to 2*s.* 3*d.*, against 3*d.* a day, whilst the climate is much the same in its demands for clothing and shelter. This is a fact of extreme gravity as illustrative of the poverty of the Indian coolie or field labourer, not to be met by resting satisfied that "chronic famine is one of the diseases "of the infancy of nations." For India as a nation has long passed its "infancy," and the task of the British Government is, by fostering diversity of occupation, to guard it against decline.

Proportion of grain and rice used as food by natives of India.

10. The food of two thirds of the people of India is grain, and of one third rice. The annual surplus of rice, as shown by the export, is so great that a sufficient supply from the current crop can always be relied on to meet a partial rice famine. But the export of food grain, other than rice, from India, during each of the last ten years, has been less than one day's consumption of the grain-eating population. There would thus appear to be no sufficient annual surplus within the country to meet the demand of a severe grain famine, without drawing part of their ordinary food from the unaffected districts, thereby diminishing their supply, raising the price, and thus extending the area and general pressure of the famine. This has been the uniform effect of drawing supplies suddenly to the famine districts from other parts of India. Supplies from foreign countries are practically impossible. The densely peopled countries of other parts of Asia do not appear to export grain. And in a country where the annual surplus of grain is so small, and where it cannot be increased by foreign importation, the absolute need of reserves in seasons of scarcity, for the supply of places difficult of access, becomes almost imperative. The most effectual remedy for this would be to encourage the storage of grain in such localities in seasons of plenty.

No sufficient annual surplus of grain to meet the sudden demand of famine,

and foreign supplies not procurable.

Storage in seasons of plenty therefore required in localities difficult of access.

11. No treatment of famine has yet been successful in the preservation of life that has not been ready to be commenced at the earliest period of actual want. The food of the people is of the simplest kind, grain and salt, and a few condiments for a relish. The grain is easy to handle, bears storage in pits for many years, and the people themselves grind it as they require it. The pits are made in the ground, in a manner with which the natives are familiar, and cost nothing beyond the encircling ring of baked clay, and labour, in construction. We propose no new practice, but recommend that, in outlying places, the Government should, through their resident officials, do for the safety of the poorer class what the wealthier now do for themselves. The people live on different varieties of dry grain grown in their several districts, which is the specific food they are accustomed to. As this common grain is rarely an article of export, its storage would in no way interfere with the operation of foreign trade, and as the storage would be subdivided in every village it could be done without disturbance to the usual operations of husbandry. In seasons of abundance stores may very conveniently be made. A village of 400 inhabitants, cultivating 400 acres of grain, may be reckoned to have 40 of the class for whom storage is here proposed. A store of seven tons would suffice for this number during a year of famine, and as severe famines on an average come as yet but once in 11 or 12 years, the quantity so required might be secured out of two years of good crops during that interval, at the rate of $3\frac{1}{2}$ tons for each time, without any pressure on the rest of the people, while the storage of that quantity of grain would be a simple and inexpensive operation.

Grain food easy to handle and to store.

Mode of storage simple and inexpensive,

and would not interfere injuriously with trade.

12. Where the administration of relief in time of famine has broken down, it has generally been due to an attempt having been made to combat an extraordinary emergency with ordinary means. But arrangements that answer their purpose fairly well in the ordinary conditions of society fall to pieces when those conditions are shaken to their base by an abnormal visitation such as famine. As a general principle it is manifestly inexpedient for the Government to undertake any functions which experience has shown can be adequately performed by private enterprise. In ordinary times, wherever a demand arises, trade will in due course furnish the supply; but we know from sad experience that in a sudden emergency, such as famine, trade has often been found wanting. Instances are on record of starving people, with money in their hands, being unable to purchase food which trade had either failed to bring to the locality, or which, under the influence of panic or greed, the traders refused to put into the market; and the reason

Ordinary appliances not adequate to cope with unusual emergencies.

is obvious. Trade as a rule acts cautiously, and is not influenced by sentiment. Its object is profit, and unless that is clearly discerned it is slow to move. There is much risk also in a speculation which might be altogether marred by a few falls of rain, which would convert imminent famine into moderate sufficiency. And thus, as a matter of fact, trade remains inactive until the uncertainty has become reality, when the task of replenishing the exhausted stocks, over an enormous area, is one of such vast proportions that, without railway advantages, it cannot be accomplished before famine becomes master of the situation, and trade supplies arrive too late to save the lives of tens of thousands.

There will doubtless be difficulties attendant on the practical working of the scheme, but they will not, we think, be found insuperable. On the other hand, it is certain that the stored provision of an adequate supply of food for the poorest class in every village would give time for trade to operate, and, by inspiring confidence among the people, would prevent wandering and the disruption of local and family ties, causes which have hitherto so much impeded the effectual administration of relief, and so greatly enhanced its cost.

13. The main difficulty arises in making a beginning, inasmuch as it is impossible to predict the locality on which famine will fall, and, if the scheme were to be carried out in its integrity at the outset, it would be necessary to make provision for the whole period of 54 years, though only one fifth of the store would be required in each 11 or 12 years of the famine cycle. As the value of our suggestion is to be tested by experiment we would propose to proceed gradually, making one locality after another safe, after careful trials had proved that the plan was likely to succeed. If success should be assured, the plan might then be systematically entered upon, on the basis of securing 666,000 tons in the first period of 11 years, which would be the whole quantity necessary to feed, for 54 years, 10 per cent. of the population of one fifth part of India, the proportion here assumed to be difficult of access. The grain would be bought in years of plenty, on the spot where grown, at 4*l.* a ton, delivered at the pits, and the cost of storage may be taken at 10*s.*, making together 4*l.* 10*s.* The quantity annually stored would be 60,000 tons, at the cost of about 270,000*l.* This, when all was got into working order, would be the annual cost during the first 11 years, making a total of 2,950,000*l.* for securing, for 54 years, one tenth of the poorest of the population of one fifth part of India, against the effects of drought. In the eleventh year we may reckon that one fifth of the stores will be required to meet a famine, and this quantity, at a cost of 594,000*l.*, should be replenished in the first two good seasons afterwards. This would carry the country on till the famine period recurred 11 years subsequently. The whole cost at the end of 22 years would be 3,564,000*l.*, or an annual average of 162,000*l.* A second fifth would then again be consumed, and again replaced at a cost of 594,000*l.*, raising the total expenditure from the beginning to 4,158,000*l.*, which again carries the country on to the third famine, in the 33rd year, at an annual cost now falling to an average of 126,000*l.* The third fifth will then be consumed and again replaced, raising the total cost to 4,752,000*l.*, but lowering the average annual cost for 44 years to 108,000*l.* And in like manner the fourth famine will then have eaten up the fourth fifth, to be again replenished before the 55th year, raising the total cost to 5,346,000*l.*; the average annual cost for the whole period having fallen to 97,000*l.* The last fifth will then be consumed by the fifth famine, leaving in store a fresh stock of four fifths to commence a new famine cycle. The whole expenditure to the end of the first cycle of 54 years would thus be 5,346,000*l.*, but this will leave stocks in hand sufficient to carry on for 44 years more.

We have put forward this proposal for partial storage more as a means of saving life than of saving money, but the certainty of the latter would appear to be quite as great as the former. The annual famine insurance fund of 1,500,000*l.* would in 55 years amount to 82,500,000*l.* One fifth of this, taken for the one fifth part of the country with which we have been dealing, would be 16,500,000*l.*, whilst the actual expenditure under our plan would be something less than one third of that sum; moreover, there would

remain in hand stocks to the value of 2,360,000*l.* as a provision against future famine for the poorer class, in four fifths of the country to which the system of storage had been applied. The argument in para. 161 of the Report by which it is attempted to be shown that, by the multiplication of interest at 10 per cent., the ultimate cost will be extravagant, is quite fallacious. The Government of India can raise money at 4 per cent., and, if any charge of interest for this object be legitimate, that should be the limit. But the necessary expenditure in making provision against famine comes out of the current revenue, and is no more chargeable with interest than the annual cost of any other branch of the public service.

14. Without desiring in any way to depreciate the efforts of the many able officials who during the last century have given their attention to the question of famine relief, we think that the terrible fact of five million people having been allowed to perish in the last famine is sufficient proof that past experience must serve more as a warning than a guide. The complete break down that then occurred was but a repetition, on a larger scale, of the failure which has characterized the administration of every Indian famine in this century, with the single exception of that of 1874, which was ruled by the principle that, before all other considerations, the saving of life should be the first object of a British Goverment, armed with absolute power, and therefore the more responsible for the lives of its helpless subjects. While we are thus unable to draw any comfort from the past, we do not differ from our colleagues in desiring to have labour in return for State relief, though only so far as it is at once capable and useful; nor do we at present counsel interference with trade, except in localities with which it has as yet imperfect means of communication.

JAMES CAIRD.
H. E. SULLIVAN.

LONDON:
Printed by GEORGE E. EYRE and WILLIAM SPOTTISWOODE,
Printers to the Queen's most Excellent Majesty,
For Her Majesty's Stationery Office.

REPORT

OF THE

INDIAN FAMINE COMMISSION.

PART II.

MEASURES OF PROTECTION AND PREVENTION

Presented to both Houses of Parliament by Command of Her Majesty.

LONDON:
PRINTED BY GEORGE EDWARD EYRE AND WILLIAM SPOTTISWOODE,
PRINTERS TO THE QUEEN'S MOST EXCELLENT MAJESTY.
FOR HER MAJESTY'S STATIONERY OFFICE.

1880.

[C.—2735.] *Price 2s.*

IRRIGATION MAP
OF
INDIA
for the
REPORT OF THE FAMINE COMMISSION

1879.

Scale: 128 Miles to 1 Inch.

The figures denote heights above the Sea in Feet.

REFERENCES

Country protected by canals in operation

Country irrigated by tanks

Country capable of being protected by projected irrigation works

Laccadive Islands

Mimcoy I.

Longitude East of Greenwich

Delawny Saunders Geogr.

Fred.k Dangerfield, lith. 22, Bedford St Covent Garden.

REPORT

OF THE

INDIAN FAMINE COMMISSION.

PART II.

MEASURES OF PROTECTION AND PREVENTION.

Introduction.

Introductory.

e earlier part of our Report we have considered the measures which in our hould be adopted when severe scarcity or famine, following on drought and -spread loss of the food crops of the country, has actually arisen. We have cognize the fact that the failure of the periodical rains is a calamity the e of which at intervals, over areas varying in extent, is certain, though for ent at least neither the time nor the locality can be foreseen; that these s, being beyond the power of man to avert, will in the existing condition frequently be followed by famine, inflicting intense suffering on the people; the only thing that can be done to prevent great loss of life is to supply ns of obtaining food by State relief on an ample scale of magnitude. We to the other and more complicated part of our inquiry, which relates to the of placing the people, by the action of Government, in a better condition he effect of droughts, either through administrative changes, or by the of measures which shall improve their social or economical state, or add to s of their material improvement.

s part of our Report may conveniently be preceded by a statistical outline esent material condition of the chief provinces of British India, which will ht on the subjects of which we shall treat. Of these, the first will be certain ons of the existing administrative system which appear to us advisable. hall consider in some detail the relations of the agricultural population with nment and one another, with special reference to the incidence of the land the tenure of land, and other kindred matters affecting the well-being of this he community, and likely to have a bearing on their power of resisting the f calamitous seasons, or improving their general condition. We shall then h the important subject of agricultural improvements, and the yet larger of prosecuting public works designed to add to the productive power of the or to give it the means of protection against drought or famine; and conclude gestions on a few other matters which have appeared to demand our attention, the encouragement of other occupations than that of agriculture, the preser- f forests, and emigration.

Chapter I.—Statistical Review.

Section I.

Cultivated Area and Out-turn of Food Crops in relation to the Population and to possible Droughts.

Punjab.

he cultivated area of the Punjab is 21 million acres, of which 18½ million acres Cultivated area.
der food crops, making 1¼ acres of cultivation and a little more than 1 acre l crops to each inhabitant. The produce of food grain is estimated by the al authorities at 5¼ million tons, being at the rate of nearly 11 bushels, or a ton, per acre. The amount required for the ordinary consumption of lion persons, and for seed grain, cattle food, &c., is 4½ million tons. About tons of food grain on an average are known to be exported to other provinces.

the cultivated area, viz., 21 millions of acres, 5½ millions are irrigated and Irrigated and protected area.
rrigated; 4½ millions of the irrigated portion and 14 millions of the unirri- re under food crops. Of the irrigated area, 87 per cent. gets its supply ells and canals, and 13 per cent. from the somewhat precarious sources of onds, and small streams. Of the 14 millions of unirrigated acres growing food ½ millions are protected by river flooding or percolation; 6½ are situated

in districts where the rain-fall is in ordinary years sufficient; and 6 milli dependent on a precarious and often insufficient rain-fall. Thus only one-t the area devoted to food crops is so situated as to occasion frequent anx account of drought. This latter tract is mainly contained in the Hissar, and Derajat or Trans-Indus Divisions. Stated in other words, about 22 per the food-producing area is securely irrigated, 46 per cent. is partially prote river flooding, precarious irrigation, and a tolerably secure rain-fall, while cent. is dependent for its crops on a very uncertain rain-fall.

Extent to which food supply is secure.

3. Assuming that an acre of irrigated land can produce 12 maunds o enough to support 2·5 people, seven million acres of irrigated land would be for the support of a population of 17½ millions. Now the effect of a v drought would be to greatly enlarge the area under canal irrigation, to co under wells, and almost annihilate that under streams and pools. The area of such a year may be taken therefore at about 4½ million acres. A this the 1½ millions protected by flooding in the river basins, it appears that the most complete failure of the rain there could only be a deficiency of acres in the food-producing area; so that it may be said that an actual ab food in the Punjab is a most remote contingency.

North-Western Provinces and Oudh.

Cultivated area.

4. The North-Western Provinces and Oudh have a population of about a n the valleys and on the slopes of the Himalaya, where no serious failure of the be anticipated. In the plain of the Ganges the population is 41 millions cultivated area 36 millions of acres, of which 31 millions are under f There are thus ·88 cultivated acre, and ·76 acre of food crop to each The total average out-turn of food is locally estimated at 11¼ millions o about 13 bushels, or ·36 of a ton, per acre; and the ordinary consumption, food for men and cattle, seed grain, and wastage, at 10½ million tons.

Area irrigated and protected.

5. The present irrigated area from all sources is about 11½ million acres 15 per cent. gets water from perennial canals, 50 per cent. from wells, and from ponds and small streams, which are very liable to dry up if the deficient. Two of the canals now running will, when fully developed, irri half a million acres more than at present; three others, which are under tion, will, when constructed, supply water to about 2 million acres; and also room for a great increase in the area irrigated by the existing canals, of greater economy in the distribution of the water. Of the 22¼ millions gated acres, the greater part lies in a tract of country in which the ra fairly secure. In the Bundelkhand districts alone is it frequently scanty and ir and here irrigation is extremely rare, while the unirrigated area in the amounts to about 2½ million acres. The tract of country called the Doa between the Ganges and Jumna, is better protected by irrigation than ar part of India. Its cultivated area is about 9 million acres, and of this 1 are watered by the Ganges and Eastern Jumna Canals, 2,220,000 by we 272,000 from streams and ponds, &c., making a total of 3,712,000 acres, than 40 per cent. of irrigation, much of which is first class in its characte Rohilkhand division, with 4½ million acres, has only 850,000, or less than 20 pe irrigated, but none of this is due to large canals, and much of it is from poo hill streams, a very precarious source. In the Benares division and the tract Allahabad, out of 7½ million acres 2,900,000 are irrigated; in Oudh, with an 8¼ million acres, 3¼ millions, or nearly 40 per cent., are irrigated in good but there are no canals, and only about half the irrigation is due to wells: is from ponds mainly, which may dry up, though a serious failure of rain part of the country is a calamity of rare occurrence.

Extent to which food supply is secure.

6. It is estimated that 15½ million acres of food crops will, if irrigated, supply necessary to support the population for a year, and that if permanent irrigatio provided for such an area all fear of famine will be removed. At present on 7½ million acres are securely irrigated, but it may be assumed that in a bad ye lions of acres situated in depressions and valleys would be moist enough to al winter crop, and that in the worst season some rain is certain to fall in so f the province. Allowing for the increase in the canal-irrigated area ref bove, there can be little doubt that in the event of an almost complete f he rains, enough food would be grown to supply the entire population. ecured by irrigation and by flooding would produce 3½ million tons, or uantity required to feed the people. If, of the remaining 22 millio

ns produce an average crop, and 12 millions are smitten with barrenne
of the year's consumption would be made up. Any worse calamity tha
dly be provided against; and for seed-grain and other requiremen
safely be placed on existing food stocks and the importing power of th

Bengal.

tivated area of Bengal, the information regarding which is much less
m that which we have for any other part of India, is estimated at
of acres, of which 48½ are under food crops; a total which would giv
d acre and ·81 food-growing acre per head of the inhabitants. Som
province, and notably those around Calcutta, have an extremely den
In some districts there is less than half an acre of food-growing land to
tant.
exist as to the actual produce. The estimated ordinary consumption o
y, including the food of the 60 million inhabitants, the quantity require
d for cattle, with the loss by waste, is about 16 million tons of grain.
for the known amount of exports by sea and by land, the average annu
f food grain cannot be less than 17·2 million tons, which gives a rate
or about 13 bushels, or 806 lbs. per acre. It is estimated that about half
ving area is under rice, and that each acre sown with rice produces on an
y half a ton.
t easterly parts of the province are believed to be safe from any ris
A line drawn from north to south, through Calcutta, separates with
uracy the naturally protected parts of Bengal from the rest. All the
he west of such a line is more or less exposed to the risk of drought.
105,000 square miles, and a population of 46 millions. The parts in which
of drought have been most serious are: (1) a tract extending along the
Nepal, from the Gandak to the Kosi river, 250 miles by 50; and (2) the
a. The two tracts together contain 20,000 square miles, or say 13 millions
which 9 millions are cultivated, and a population of 9 millions.
tion works on a large scale have lately been constructed in Orissa and
ar, and are still in course of development. These, together with one ot
, irrigate at present 450,000 acres, and when complete will supply sufficient
e very driest year for 1,330,000 acres. The total irrigated area from canals,
ill streams will, when all the existing schemes are completed, be 1.700,000
ree per cent. of the cultivated area. The Sone canals in South Behar
o one of the most exposed tracts, and the Orissa canals are in the
e other. The part of North Behar which is most exposed to drought
to be within easy reach of a water-bearing stratum, so that a consider-
of protection could be attained by the construction of wells.
position of Bengal as regards liability to drought may, accordingly, be thus Se
the
supp

Total food crop area - - -	48½ millions of acres.
Naturally safe - - - -	13½ „
More or less unsafe - - -	35 „
Area specially affected in the last two famines - - - - -	9 „
Area for which protection is being provided - - - - -	1¾ „

minimum quantity of food required annually to support the present population
million tons, and the area naturally safe and irrigated will produce 7 million tons.
the remaining 34 million acres only one-third produce an average crop, the food
population is secured.

Central Provinces.

The Central Provinces have a cultivated area of 15½ millions of acres, of which Cul
lions, or 84 per cent., are under food crops. The population being 8¼ millions, are
re 1·9 cultivated acres and 1·8 acres under food crops per head. Of the food
one-third is rice and rather more than one-fourth wheat. The total food out-
estimated at 2¾ million tons, being at the rate of ·21 ton, or 470 lbs., or nearly
ls per acre, and the annual consumption, of all kinds, at 2½ millions, leaving a

surplus of about 300,000 tons. The actual average exports to other pr
the last five years have been over 200,000 tons.

rrigated rea. 12. Although there are numerous tanks in some of the Eastern Distri is the chief crop, the harvests as a general rule depend on the natural only 775,000 acres, or 5 per cent. of the cultivated area, are irrigated. In part of the country, however, the rain-fall has never been known to fail, of India is freer from any apprehension of the calamity of drought t Central Provinces and Berar.

Berar.

ultivated rea. 13. Berar has a cultivated acreage of 6½ millions of acres, of which food crops. Its population in 1867 was 2¼ millions. Unless this po largely increased, there must be in this province the exceptionally high ra cultivated acres and one and two-thirds food-growing acres per head of tion. The food out-turn is reckoned at 618,000 tons, which is ·16 ton, or about 6 bushels per acre. The ordinary consumption under all hea 542,000 tons. In 1877–8 Berar exported 40,000 tons of food grains.

14. Irrigation is mainly from wells, and almost entirely devoted to ga and sugar-cane; the area irrigated is about 100,000 acres. There is an imm 2,800,000 acres, under non-food crops, 2 millions of which are cotton; 6 of this staple, worth £2,650,000, or about four times the Government r sent away in 1877–8. The rain-fall in this province has never yet experie failur

Bombay.

ultivated rea. 15. The average area under cultivation in the Bombay Presidency, excl and the district of North Kanara which is not yet surveyed, is about 24½ acres, of which 19¼ million acres are devoted to food, 5¼ millions to non As the population of this part of the presidency was, by the census of 187 lions, there are 1·8 acres of cultivated land and 1·4 of food-cropped land the population.

t-turn of d. 16. No detailed estimate has been made of the out-turn of the harvest The annual ordinary consumption, excluding Sindh but including food fo cattle, seed grain, and waste, amounts to 3½ million tons, and allowing for surplus the produce cannot be less than 3,800,000 tons. This gives an avera of ·19 ton, or 415 lbs., or nearly 7 bushels an acre, a rate which is much s the fertile plains of Guzerat, while it is higher than the actual out- dry regions of the Deccan.

rrigated rea. 17. The area irrigated from canals, streams, and tanks is about 300,000 from wells is not known. The crops usually irrigated—garden crops and about 1,400,000 acres, or 5 per cent. of the cultivated area, and this amo may be considered fairly safe from drought. All the rest of the provin to the dangers of a precarious rain-fall, and especially the Deccan, with its 1 acres of cultivation.

ndh. 18. Sindh, with 2¼ million people, has about an equal number of cultivated Of these about 1¾ million are irrigated from the inundation canals led off fr Indus, and the rest, with unimportant exceptions, are lands flooded by it with intervention of canals. As hardly any crops are sown in dependence on the (which is extremely small and irregular), no failure in the food-harvests ca from local want of rain.

Madras.

ultivated area. 19. The cultivated area (only 70 per cent. of which has been surveyed) is est at 32 million acres, of which 29 millions are under food crops. Of these, rice acc for one-fifth; the rest are sown with millets and pulses. The population 31 millions, there are 1 acre of cultivated land and ·93 acre of food-croppe to each inhabitant. The out-turn (which varies from nearly half a ton per a rice to a fifth of a ton for pulses, and stands for all food crops at ·3 of a t 658 lbs., or nearly 11 bushels per acre) is locally estimated at about 8½ millio The ordinary consumption of all kinds amounts to nearly 8 million tons, le surplus of more than half a million.

Irrigated area. 20. About 7 million acres are irrigated from all sources. The great canals from the Godaveri, Kistna, Caveri, and other rivers, supply a permanent so irrigation to 2,100,000 acres, 3 millions are irrigated by tanks, and nearly 2

vells. In the Western Districts, Malabar and South Kanara, rain never fails, so their population—about 3 millions of people—are safe from famine, leaving a nce of 28 millions in the rest of the presidency. Allowing for the necessary urity of irrigation from tanks, and the partial drying up of wells, it may be ned that 4 million acres (out of the 7 millions irrigated) are completely secured drought in the worst season conceivable; and assuming that each irrigated produces half a ton of food, and therefore supports three persons, 12 millions ople are protected in this way. There remain 16 millions to be provided for, ring 2½ million tons of food, or the produce of 7½ million acres at average rates; hat if more than two-thirds of the unirrigated land were smitten by drought, produce of the rest, at average rates, would supply the balance of food needed pport the population.

Mysore.

Cultivated area.

The population of Mysore was, by the census of 1872, 5 millions, the cultivated is estimated at 5½ millions, and the area under food crops at 5 millions, being cres of cultivated land and 1 acre of food-growing land to each inhabitant. e food-growing area about 800,000 acres, or 16 per cent., are under rice; the s sown with millets and pulses. The out-turn is reckoned at 1½ million tons, gives ·3 ton, or 672 lbs., or about 11 bushels per acre, and the consumption kinds at 1¼ million tons.

Irrigated area.

The irrigated area is estimated at about 800,000 acres, or nearly 20 per cent. cultivation; but of this a great portion is due to tanks, the supply of water which in seasons of drought is precarious, and failed altogether in 1876. Con- ntly only that small portion of the area which receives water from the Caveri ls or from wells can be looked on as securely protected from failure.

British Burma.

Area cultivated and secure.

. The province of British Burma contains a population of 2¾ millions, and a ated area of about 2,700,000 acres, or nearly one acre to each inhabitant. The vation is almost entirely rice, a very small area being under non-food crops, and out-turn is estimated at about 1½ million tons of rice, or more than half a ton per The surplus produce is very large, as the population only consumes about half quantity it raises; the annual consumption for ordinary purposes being about 0 tons, and the export by sea to foreign countries 600,000 tons. There is no ion in Burmah, and no failure of the rain has ever been known to occur.

Section II.

Culturable Waste Lands, and possible extension of the Cultivated Area.

Classification of uncultivated land.

One of the points we have specially to consider is, how closely the population s upon the means of subsistence, and what margin of waste culturable still remains which can be utilised for increasing the food supply and ng the wants of a growing population. The officers who conduct the Revenue y, ordinarily classify uncultivated land under three heads: culturable fallow, urable waste, and forest or hilly tracts. These distinctions, however, cannot dly relied on, for there is no very clearly marked line between culturable and turable waste. The subject not being one immediately affecting the assessment Government revenue, it has not been thought worth while for the Survey officers special attention to it or to secure great accuracy; and all that must be under- by the classification is that it distinguishes as culturable, land which is obviously the plough. The term "forest" also sometimes includes true timber forest, Burmah, sometimes low scrub and barren hills, as in Ajmere.

Blocks of culturable waste in the Punjab and North-Western Provinces.

But the matter most important for the present purpose is to distinguish waste which lies in unoccupied blocks available for the use of new settlers, from the ed plots that lie in villages already more or less highly cultivated and densely ted, which are used as common lands for grazing the village cattle, and portions ch the present cultivators will gradually take up and bring under the plough.

There is no part of India in which some land of this latter kind does not exist, t there are only a few well-defined tracts of the former class. Thus in the Pun about 35,000 square miles, a third of the whole area, are cultivated, rather l than a third, 30,000 square miles, are returned as culturable waste, and rather m than a third, 38,000 square miles, as unculturable. These figures show that there much room for extension in the Punjab, and that the population does not as a wh press heavily on the land, though in districts like Amritsar, with 1,200 square m cultivated out of 1,560 culturable, the limit of cultivation may almost have b reached. A large part of the so-called waste areas is made up of the fallow a grazing lands of the various villages and the uncultivated southern ranges of th Himalaya, but the really important tract of waste land is that which lies at som distance from the Himalaya, occupying the plains between the great rivers, a mainly in the Multan Division, where some nine millions of acres of fairly fertile s are ready for cultivation if only water can be given to them. Large areas in Sind could also be brought under cultivation if the means of irrigation were provided and the same may be said, in a less degree, of the plains of Hissar. In th North-Western Provinces and Oudh, which in this respect show a marked contr to the Punjab, the cultivated area is half and three-fifths respectively of the to area. The united provinces contain 51,000 square miles of cultivation, 19,0 of culturable waste, and 29,000 unculturable, the latter including more tha 13,000 square miles in the Himalaya, the northern spurs of the Vindhyas, and th Kaimur range. In most parts there is but a small margin of easily culturable lan left, and much of that which is returned as culturable, being to some extent impr nated by salts pernicious to vegetation, can hardly be rendered fit for cultivation any expenditure that is likely to prove remunerative. It is only in the Bundelkha districts and those bordering on the Tarai that much arable waste will be found, a the reason for this is that the soil is poor and the rain-fall precarious in the one ca while the country is subject to malarious fever in the other.

In Bengal. 3. In Bengal no trustworthy statistics are forthcoming, but it is estimated that o of 144,000 square miles 85,000 are cultivated. In some of the districts of Behar a Central Bengal the cultivated area forms a very large proportion of the whole; Saran, for instance, it is believed that out of 1,698,000 acres, 1,566,000 are und the plough, and that a margin of only 65,000 culturable acres still remains. In t hilly tracts to the south-west, in the districts that lie at the foot and on the slop of the Himalayan and the Eastern Ranges, and in the jungles of the Sundarbans, ther is a great extent of land which may at some future time be brought under cultivatio but it is either feverish or poor thin land, not tempting to a settler, or else it requi considerable outlay for clearance of forest, or exclusion of river or sea water, to rende it fit for agriculture.

In the Central Provinces. 4. The Central Provinces return their total area as 114,000 square miles, of whic 30,000 are cultivated, 40,000 culturable, and 44,000 unculturable. The populati here is very scanty, and there is no district or part of a district in which there is an early prospect of the limits of cultivation being reached. The greater part of th waste land is occupied by hill and forest; but there are two tracts to which th attention of immigrants might be directed; one is in the western end of th Nerbudda valley, the other in the eastern or Chatisgarh Division. An attemp which failed completely, was lately made to settle a party of immigrants in th former of these tracts, to which reference will be made further when treating o emigration.

In Bombay. 5. Bombay proper (excluding Sindh and the Native States) has a total area 77,000 square miles; of this about one-third pays no revenue or only a quitrent t Government, and there are no details showing the proportion cultivated; of the re maining 50,000 square miles, about 38,000 are culturable; of these 35,000 are occupi but only 30,000 cultivated, it being a practice here for ryots to occupy and pay fo larger area than they can plough, partly for the sake of the grazing and partly in hope of being able to extend their cultivation when they can afford to hire m labourers or buy more bullocks. As far as the area is concerned, therefore, there ample margin for the extension of cultivation; but there are no large blocks good land awaiting settlers. In every case the best land has been taken up alrea and the poorest remains.

In Madras. 6. The Madras Presidency contains 138,000 square miles, but of these 50,000 bel to the great zemindaris (or permanently settled estates) which have not been survey and regarding these not much information exists. Of the Government lands l under the ryotwari settlement, about 35,000 square miles are cultivated, and ab

,000 square miles are culturable waste, the remainder being for the most part ... plain. In Madras as in Bombay the soil of the unappropriated lands is ... ively poor, except in the more sparsely peopled tracts.

7. In Assam about 18,000 square miles, or half the total area, is believed to be culturable waste (the area actually cultivated being only 7,500 square miles), and in Burmah, out of a total area of 87,000 square miles, of which only 5,000 are cultivated, 40,000 are put down as culturable. The hilly forest-clad tracts of these provinces are ... yet too little explored for it to be possible to speak with much certainty as to the character of the soil and its suitability for bearing crops; but, excluding these, and ... regarding the alluvial plains along the great rivers, there can be no doubt that ... is there a very large area which is ready to receive the superabundant population ... other part of India. Assam and Burmah.

8. On the whole, then, it may be said that there are considerable parts of India—such as the Burdwán and Patna Divisions of Bengal, the Benares Division and the ... and middle Doab in the North-Western Provinces, with parts of Rohilkhand and ... h, and two or three of the most populous districts in the Punjab—in which the ...ulation is so dense that it presses closely on the means of subsistence, and here ...ss the existing system of agriculture is improved, so as to yield a larger produce ...ere there is no room for an increase of the population. Excluding these tracts, ... in most villages scope for a slow and gradual extension of cultivation by the ...ing up of uncultivated land and for the more careful cultivation of what is now ...tillage, and outside the village areas there is an immense extent of land which is ...ore or less fit for cultivation. But much of it is poor land, and where it is not poor, ... the climate is feverish or else the conditions are so different from those that ...ail in the densely populated places from which emigration might be desired or ...ected to come, that settlers would be alarmed and discouraged. Probably the only ... to which these objections do not apply are the desert waste plains between the ...ers and along the Indus, in which, if irrigation is ever introduced, cultiva-...e carried on under much the same conditions as those which prevail in the ... part of Upper India. General conclusions.

9. In connection with this subject may be noticed the extent and locality of ...ld land available for European settlers. It is admitted, as the fruit of general ...ce, that Europeans cannot actively carry on agricultural operations, or bring ...n, in the plains of India. Suitable sites for such settlers can only be found ... hill tracts, where the climate is cold enough for European constitutions, ..., in the hot season of the year, field labour could hardly be undertaken by ...n, and such labour is always performed by Natives of India at the settlements ... been formed by Europeans. With few exceptions these settlements are to ...und only on the Himalayan ranges to the north of the Punjab, the North-...rn Provinces, and Eastern Bengal, on the mountains bordering the Assam Valley ... Cachar, and on the southern portion of the Western Ghats, from the Mysore ...tory to Travancore. In the two first-named tracts are situated the greater part ... tea gardens of India and some cinchona plantations, and the teas of Kangra, ...ra Dun, Kumaun, Darjeeling, Assam, and Cachar are already widely known; ...st, the best known parts of which are Coorg, Wynád, ... and the ... Hills, coffee is largely produced, with some tea and cinchona, and the same ...n is now becoming more widely known on account of the discovery of gold ...n it. Much of the land, however, that is suitable for cultivation in such localities ...r subject to private rights, or else has been reserved by Government for pur-... of forest conservation; and it would be a mistake to suppose that there is any ... open to European settlers in which no rights exist, and which Government ... to dispose of without interference with the existing local population, or ...ut injury to other interests which it may be important to respect. Waste land suitable for European settlers.

Section III.

Agricultural Operations of the Country.

10. The agricultural system practised throughout the whole of India is mainly governed ...dvent of the south-west monsoon, which produces an almost universal fall of ... over the whole continent from the months of May or June to September or ... With this event the agricultural year commences. The rain-fall on the ... Agriculture mainly ... on ... periodical ... rain

...coast of the Peninsula is peculiar, an important season of rain occurrir... November and December with the commencement of the north-east monsoon.

Two classes of crops.

2. The month or two preceding the south-west monsoon is a period of al... absolute rest for the land; but no sooner have the first showers fallen to loosen... moisten the soil than the ploughs are at work everywhere preparing it for... coming crops. These crops are broadly divided into two classes: the rain crops ... in the summer and harvested in the autumn; and the winter crops sown in the... of the autumn and harvested in the spring. These are known through the grea...

The kharif crop.

part of the continent, wherever Hindustani is spoken, as the *kharif* and the *rabi* cr...

3. The food crops sown in the rains are mainly millets and certain pulses on h... lands, and rice in the low lands. The millets are of numerous varieties, the n... important being known as jowar and bajra; they mostly take from three to ... months to ripen, and it is on them that the mass of the poorer population depends... food and the agriculturist for fodder for his cattle. The field is generally plough... through twice before sowing; and the crop is weeded twice or thrice during ... rains. Rice is grown on low land where the supply of water is constant, or where... means of artificial irrigation exist. It is usually of two kinds, early and late: ... early rice ripening in less than three months, while the late rice stands five or... months in the ground, and ripens in the winter. The non-food crops are chiefly d... such as indigo and safflower, or fibres, such as cotton and hemp; these are grown ... the same kind of land as the millets and pulses, and are often intermixed with the...

The rabi crop.

4. The rabi or winter crops in Northern India are mostly wheat, barley, ... pulses; but in the south those cereals are little grown, and their place is taken ... the larger millets and rice. These crops occupy the ground about four months, ... November to March, but ripen later in the more northern latitudes. The ... crops are chiefly cotton, opium, tobacco, oil-seeds, &c.

System in the Punjab and North-Western Provinces.

5. In the Punjab, North-Western Provinces, and Oudh the ordinary system of ... cultivation is to raise alternately one of each of these crops, kharif in one year, rabi ... the next. This is the practice on about 80 per cent. of the cultivated land, ... half of it being under one of these crops, and an equal quantity under the ... Thus if a field has grown a rabi crop which was cut in the spring, in June it will ... sown with millets, cotton, &c., which will be harvested in September, October, ... November. As soon as this is done the field will be ploughed through, and ... ploughed at intervals during the spring and the rains, till it is sown with ... (wheat, barley, gram, &c.) in the next October. A small part of the land, however ... for which a large quantity of manure can be spared, bears two crops a year. ... quick-growing kharif crop is put down, such as Indian corn, and as soon as this ... removed the field is ploughed as often as time admits, and a rabi crop is sown ... November. Where manure is less abundant the cultivator will often raise three cr... in two years, one kharif and two rabi crops. On the other hand, there is much p... sandy land that never produces a rabi crop at all; it grows kharif crops for two ... three years in succession and is then left fallow. In Upper India wheat and bar... are more commonly grown where artificial irrigation from canals, wells, or pond... possible: and all the winter crops are greatly benefitted by the fall of the wi... rains about the end of December. In the peculiar black soil of the Central Provin... which is very retentive of moisture, however, wheat is never irrigated; nor is ... ordinarily required for the other food crops grown during the winter in the Deca... except for rice. In the south of the Punjab, and in Sindh, the rain-fall is too sm... and too uncertain for any crop to depend on it alone; and the agriculture is ... almost wholly dependent on irrigation from canals filled by the annual rise of ... Indus and its affluents after the melting of the snows. Except where these can ... reach, and where the rivers overflow their beds, leaving a rich moist deposit, ... country is an arid plain in which agriculture is impossible.

The practice in Bengal.

6. In Behar the system resembles that of the North-Western Provinces, but ... is a larger area under the late or winter rice. The high lands are sown with ... and pulses in the rains, or with early rice, and the same land is generally ... again with rabi in the autumn, the dense population in these tracts ... large supply of manure. The winter rice is grown year after year in the same ... In Eastern and Southern Bengal, and in Orissa, where the rain-fall is much ... and inundations are frequent, the millets and spring crops become rarer and ... disappear, and as a rule only two kinds of rice are sown, the early and the ... latter being by far the more important of the two.

---

* Called aus and amun in Bengal, beali and sarad in Orissa.

A MAP OF INDIA

for the

REPORT OF THE FAMINE COMMISSION

SHEWING THE FAMINES OF 1802-3 IN BOMBAY AND 1803-4 IN THE NORTH WEST PROVINCES.

Severe *Intense*

1879.

Scale: 128 Miles to 1 Inch.

The figures denote heights above the Sea in Feet.

7. In the greater part of the Central Provinces the tenacious black soil admits of little rotation of crop; during the kharif only those fields can be sown which lie on a slope and are well drained, while the level plains alone retain moisture enough to grow rabi crops without irrigation in the winter. South of the Satpura range of hills the climate is so warm that cotton and large millets can be sown as rabi crops. In the south-east portion joining on to Orissa, rice (early and late) becomes the principal crop. In the hill tracts there is but little good soil, and for the most part only kharif crops are grown and the poorest classes of millets raised. The practice in the Central Provinces.

8. Throughout the Bombay Presidency the same system of kharif and rabi crops prevails, but there is very little rotation of crop, and it is usual to sow kharif year after year in the fields most suitable to it, viz., those which are sloping and well drained, while the flat and low-lying fields are reserved for rabi. The kharif crops are still millets and pulses, and in the Guzerat Province (including Kathiawar and Baroda), and in Khandesh, cotton is largely grown, the varieties being well known in the market as Dhollera and Surat; but in the south the small millet known as ragi becomes more common; and in the Konkan districts, with their abundant rain-fall and the facility of damming up the hill-streams, rice is the prevailing crop. In the winter season wheat is largely grown in the Guzerat Districts and the Northern Deccan. In the southern part of the Deccan and in the South Mahratta Country jowar and cotton take its place for the most part. The Bombay Presidency.

9. In the north of the Madras Presidency the system of cultivation corresponds to that of the Deccan; but further south, with the diminished cold, wheat and some other staples of the Northern Provinces disappear, and the distinction between kharif and rabi gets lost. The kharif sowing remains the same, consisting of millets on the high land and rice in the low, but after these hardly anything but rice and some pulses are grown. The winter crop of rice is planted in December and cut in May, but it can be grown only when the supply of water either from a river or a tank is large, and the main cultivation in the Deltas of the Godaveri, Kistna, and Caveri is of this class. Madras.

10. The importance of manuring is known much more widely than its use is practised. Every cultivator has his manure heap on which the sweepings of the house and of the cattle shed are thrown; but the cattle dung is almost universally collected and dried for use as fuel, except during the rainy months, and the droppings of the cattle that are not stall-fed, but turned out to graze on waste lands, are lost. It is roughly reckoned that each cultivating family with its cattle produces enough manure for an acre of land yearly. Hence, where the population is dense, and as in Bengal and the North-West Provinces each family holds about four acres, the land gets more manure than in sparsely populated tracts like the Central Provinces and the Deccan, where the holdings are three or four times that extent. Manure is given first to irrigated lands, garden crops, and those requiring high cultivation, such as sugar-cane and opium, next to land growing the more valuable crops, Indian corn, wheat, and cotton, and only what remains unused in this way is given to the outlying fields, and very rarely is any given to unirrigated land. As it is the practice in India for agriculturists to live together in villages and not in scattered homesteads, the land round the village site is generally most enriched by manure, the fields next in position are occasionally manured, and the outlying plots hardly ever receive any. Artificial manures are unknown, and as a rule only farmyard manure is used; but in the hilly districts of Bombay it is common to cut down branches of trees and grass, and after strewing them over part of the field, to burn them and plough in the ashes, using that part of the field as a seed-bed, and in Madras and Mysore leaves are commonly trodden into the mud of the rice fields to increase the fertility of the soil. Manure.

11. Ploughing is almost universally done with a pair of oxen, but occasionally buffalos are used; to break up the hard black soil of the Central Provinces and the Deccan, and the northern districts of Madras, two pairs and even more of oxen are yoked together. The ordinary plough is a light wooden instrument, pointed with iron, that can be carried on the shoulder, and scarcely pierces deeper than two or three inches at a time as it passes through the soil, but by the custom of ploughing and reploughing (a wheat field in Northern India is generally ploughed from 12 to 20 times) the whole land is by degrees pulverised to the depth of six or seven inches. A pair of oxen will plough from half an acre to one acre in a day, according to the stiffness of the soil and the number of times it has been ploughed. In Upper India a "plough area" is reckoned to be about four or five acres in the North-Western Provinces and Oudh, about eight in the Punjab; but in Central and Southern India, where the cultivation is Ploughing.

much rougher and the plough is only run through the field from two to four times before sowing, a plough area (with four bullocks) is reckoned as 25 acres.

ther agri-ultural perations.

12. Sowing in Upper India is generally done broadcast for kharif and by drill for rabi, the drill being a hollow tube fastened behind the plough, or else a child or woman follows the plough, dropping seed into the furrow. In Southern India the millets are generally drill-sown. The early rice is commonly sown broadcast. The winter rice in Upper India is always transplanted from a seed bed; in Madras it is sometimes broadcast. Weeding is done by hand, mostly by women and children; or else a hoe plough is run between the rows (if the crop is drill-sown) to loosen the roots and cut up the weeds. Reaping is done in the case of rice and rabi cereals with a sickle, the reaper generally receiving one sheaf out of twenty. The grain is trodden out by oxen on a threshing floor of earth beaten hard and smooth, and is winnowed by allowing the wind to separate the chaff from the grain as it falls from a basket held up in the air.

ical sons for riculture.

13. It is evident from this description that the success of agriculture in India, more especially in those parts where the means of artificial irrigation do not exist, depends largely on the seasonable downfall of rain in suitable quantities at the times when it is required for the satisfactory prosecution of the various agricultural operations. If the south-west monsoon is exceptionally late in setting in, or premature in its cessation, or scanty and irregular, or excessive during its period of duration, great mischief may be done, and any failure of the rain at this season is damaging not only to the crops then growing, but also to the winter crops which are sown after the monsoon stops, and to which a thoroughly moistened seed bed is essential. The early and late falls are looked for to soften the soil and admit of the ploughing preparatory to sowing the kharif in the one case and the rabi in the other, and delay in putting in the seed beyond a certain period is prejudicial to the growth and maturing of the crop. The millets and pulses of the kharif crop are hardy plants, and can bear a great deal of irregularity; but any partial cessation of the rain-fall exceeding a month in duration, or, as it is called, a break in the rains of the monsoon, will do them great injury, especially if, as is sometimes the case during such a break, a hot dry wind also sets in. Rice is more delicate, and perishes if the plants are either too deeply submerged, or their roots left dry for a very few days, and for this reason the winter rice of Bengal and the sea coast is a precarious crop, dependent on the continuation of rain-fall in September and October, after the monsoon has generally ceased in Upper India. Again, the winter crops in Upper India rely to a great extent, as has already been remarked, on the coming of the winter rains at the end of December or in January. Without these rains the crop on unirrigated land will be poor; on the other hand, if they are excessive, and especially if there is a long period of cloudy weather in January, the wheat and barley is likely to be attacked by mildew. Hail-storms are another danger to which these crops are exposed; they frequently occur in February and March with great violence, and completely destroy the crops, but their influence is generally only local. Great losses are sometimes experienced in April and May, when thunder-storms set in before the grain has been winnowed, and drench it as it lies on the unprotected threshing-floors. In the south of India the north-east monsoon of November and December is looked to, not only for the benefit it does to the crops then growing, but also for the sake of the tanks which must be filled by it if the late rice is to be sown in January and February; and any deficiency in this rain-fall will therefore cause great injury to the country.

Section IV.

The Staple Food of the People.

aple foods different rovinces.

1. The food of the people is essentially vegetable, and consists for the most part, as might be expected, of the food crops ordinarily raised in the country they inhabit; the coarser grains being consumed by the poorer classes of population, and the finer and dearer kinds by the richer classes. In the Punjab, the North-Western Provinces and Oudh, in Behar and the northern part of the Central Provinces, and in Guzerat, the poorer classes live on the millets grown in the rains, and on barley and gram; the richer classes eat principally wheat and rice. In Bengal proper and Orissa, and the eastern portion of Central India, rice is the principal food, the coarse early rice being mainly taken by the poor, the finer late rice by the rich. In the south or Mahratta-speaking part of the Central Provinces, in Berar, in the Bombay Deccan, and the northern part of Madras, the two large millets, jowar and bajra, form the principal

food, the Brahmins generally living on imported rice and wheat. In Mysore the ordinary food is the small millet, ragi. In the southern part of Madras and the western districts of Bombay rice is chiefly consumed, though there is also a good deal of millet grown and eaten. All classes mix pulses with their food, the nitrogenous matter which is found in the pulses supplying an ingredient of which little exists in the cereal grains, and which is necessary for the proper nutrition of persons who rarely eat meat.

Extent to which the different food grains are consumed.

2. The degree in which the inhabitants of the different provinces depend on the three main classes of food grain—wheat or barley, millets, and rice—may be shown approximately by the areas on which those crops are grown:—

Province.	Per-centage of Food-growing Area under			Total Population.	Population eating Rice.
	Wheat or Barley.	Millets.	Rice.		
				Millions.	Millions.
Punjab	54	41	5	20	1
North-Western Provinces	57	34	9	42	4
Bengal and Assam	Not known		—	66	46
Central Provinces	27	39	34	8	3
Berar	17	82	1	2	—
Bombay	7	83	10	17	2
Madras	—	67	33	31	10
Mysore	—	84	16	5	1
Total	—	—	—	191	67

Supplementary vegetable food.

3. Maize or Indian corn (*Zea mays*) does not form so large an element in the food of the people as might have been expected from the fact that it is grown to some extent in almost every part of the country, and can be grown everywhere and, in Southern India at least, at any season in the year. In practice, however, it is commonly only sown in small garden plots, and much of it is consumed by the growers before it ripens, very little coming into the market. It is rarely ground or exposed for sale in the form of meal. Other vegetables, such as spinach, pumpkins, carrots, and potatoes are also cultivated, for the most part for home consumption; only near large towns are they grown for the market. The use of them as food is universal, except in the case of those families who do not possess land, and who are not rich enough to buy them. Such persons often supply their wants by wild herbs from the fields and waste lands, which are found by experience to be wholesome and palatable. The leaves of the mustard and rape and the gram (*Cicer*) plants are also very frequently picked from the fields and cooked for food like spinach. The fruit of the Mhowa tree (*Bassia latifolia*) is an important element in the food of the people wherever that tree is abundant, which it is in most parts of Central India and the Central Provinces, and many of the wild tribes in these tracts subsist almost entirely on this and on similar forest products. The mango, plantain, and cocoa-nut also enter largely into the food of the country.

Animal food.

4. Meat is comparatively little eaten by any classes in India. Mahomedans, indeed, for the most part, make it a regular article of their diet, but in small quantities, to supplement the main vegetable elements of their food. The meat they eat is generally that of sheep and goats, less often beef or fowl. The lower classes of Hindus have no scruples in eating meat other than the flesh of horned cattle, and their abstinence is largely due to their inability to buy so expensive a luxury. Rajputs, especially in Central India, where the chase is often the chief occupation of their lives, and the wild tribes all over India who live in the forests, eat what they can kill, including even the flesh of the wild pig; but many tribes of pure Hindu blood refuse to eat the flesh of deer and swine when thus killed. Fowls and eggs, in some parts of the country, are held in abhorrence by all but the very lowest classes, who feed also on such creatures as rats and mice, and on the flesh of dead bullocks; and to these classes a famine, at least in its initial stage, often brings an unwonted supply of food, by reason of the mortality amongst the cattle. Both sea and fresh-water fish are favourite articles of diet whenever they can be caught; and dry salt fish is largely consumed all along the coast, and most of all in the Madras Presidency. But the great mass of the inhabitants of India taste no animal food from one end of the year to another, except milk, curds, and ghi or clarified butter. No form of cheese is known.

Section V.

The Utilisation of Water for Irrigation.

ree sys- is of irri- ion.

The special peculiarity of Indian agriculture is the ingenious and assiduous manner in which water is applied to increase the produce of the soil. Some of the crops grown during the rainy season, and many of those grown in the winter and spring, cannot be raised without artificial irrigation. A brief account will here be given of the principal methods adopted for utilising (1) the rain water, (2) the water of rivers, (3) the subterranean springs and waters.

nks; first, Southern dia;

2. The chief manner in which the surplus rain water is made available for irrigation is by storing it in tanks. It is in the south of India that these tanks are most numerous, and are constructed on the largest scale. In Mysore the number has been reckoned at 38,000, and in Madras there can hardly be less than double that number. In those countries the ingenuity of man has been employed for many centuries in taking advantage of every locality in which water can be caught and stored, and prevented from running off uselessly to the sea. Where a depression exists with two or three square miles of catchment above it, an earthen embankment is thrown across it; some water is caught by this to be guided into the fields below, while the surplus escapes and flows past the flank of the embankment. Half a mile lower down another embankment is formed, and another beyond that, each larger and stronger than the one above it, as the drainage area of supply becomes larger. When the volume of water has become large the embankment is often faced with stone to resist the wash of the water. The escape weir is cut through a bed of natural rock, or paved and flanked with solid masonry, lest the earth of the embankment should be cut away by the water as it runs off. Masonry sluices are formed in the embankment, communicating with channels which lead to the irrigated area below; the closing and opening of these sluices, so as to distribute the water fairly and in order, becomes the occupation of a hereditary servant of the tank. The duty of repairing and turfing the embankment, and keeping the stone revetment, the sluices, and channels in order, attaches either to the villagers who benefit by the tank, or to some landowner (the heir, perhaps, of the original constructor), who is remunerated by the possession of rights over part of the land irrigated, or to Government in the case of the larger tanks. Some of these may more properly be called lakes. Thus, the Sulikere tank in Mysore (in the Chitaldrug district) and the Cambam lake in Karnul, which are probably the largest in India, are 40 miles in circumference. The smaller tanks are used only during the rains, and chiefly for the rice fields, which require a constant and equable supply of water without any interval; the larger contain a supply for the year, and make possible the cultivation of the later rice, which is sown in December or January and ripens in April or May, of sugar-cane and garden crops, and the plantations of cocoa-nut and areca palms and plantains. The water is allowed to flow by gravitation into the fields that lie below the sluices of the embankment. Most of the large tanks contain a little water even at the dry season, but few would have any supply available for a second year in the case of the monsoon failing, except when they are fed by channels taken off from streams which drain a comparatively large area. The tanks of this latter description are not numerous, but are greatly superior in value to those dependent on local rain-fall. They afford a means of storing and utilising the waters of streams whose flow is intermittent; and they can thus be relied on as a source of supply, even when the rain-fall is very deficient.

Second, in the rest of India.

3. The same system of tank construction exists, though not carried to such a pitch of excellence in the eastern part of the Hyderabad State (Telingana) and of the Central Provinces (Chhatisgarh and Bhandara), in which rice is extensively grown. A few large tanks have been made by the British Government recently in the Bombay Deccan: some of them were among the most useful relief works carried out during the late famine. In the Northern districts of the Deccan and in Berar a good deal of use is made of simple earthen embankments, which, however, only retain water during the rains, and are cut through to let it out when the monsoon is over. In Rajputana and Central India tanks are not unfrequent, and some of them are splendid works, made by throwing embankments or masonry weirs across the valleys between hills on either side. Many of these are only used for ornament and for drinking purposes, not for irrigation. In Ajmir and Mhairwara the energy of Colonel Dixon repaired a number of old tanks and created many new ones, some thirty years ago. In the Bundelkhand districts of the North-Western Provinces there are several very large and beautiful tanks, but their influence on agriculture is small.

In Behar it is very common to throw up low long earthen mounds to check the rain water and assist the rice cultivation, and something of the same kind is done in the trans-Indus districts of the Punjab, where rain is very rare. Natural ponds are also made use of, the water being baled out with a basket slung to ropes, held by two men at a time. Lastly, all over India, wherever rice cultivation is practised, high borders surround the field, to hold in the rain and allow it to sink in and thoroughly moisten the soil.

Utilisation of river water.

4. Another common mode of obtaining the means of irrigation is to dam up streams and lead them over the adjoining land by a side channel. This, in the case of the smaller streams, is frequently done with much efficiency without any intervention on the part of the Government, except for the purpose of deciding and recording the nature and priority of the rights of those who use the water. The larger rivers are, however, beyond the management of individuals or village communities; and here the State has been obliged to step in and to employ the science of its most skilful engineers to control and govern the stream. Something was done in this direction by the Native kings of the country before the British rule. The most notable instances are the channels taken off from the Caveri in Madras and the canals from the Jumna in Northern India, and some of the inundation canals along the Indus. But the chief irrigation canals of India have been constructed under the British rule. These are of two kinds: perennial and inundation canals. The perennial canals, again, may be distinguished, first, as those which are drawn from rivers high up their course, like those of Upper India; second, those formed in the deltas of the larger rivers, like those in Madras and Orissa.

Perennial canals.

5. Of the first class of perennial canals the great instances are—the Ganges Canal, the largest artificial stream in the world, which, leaving the Ganges where it issues from the outer Himalayas at Hardwar, irrigates 1,200,000 acres and cost 3 million pounds sterling;—the eastern and western Jumna canals, which are both derived in like manner from the Jumna, and irrigate between them 680,000 acres at an initial cost of three-quarters of a million;—the Bari Doab Canal, taken out of the Ravi as it enters the plains, which cost 1½ million sterling and irrigates 250,000 acres;—the Agra canal, which leaves the Jumna at Delhi, and which, being recently opened at a cost of 800,000*l.*, has not yet developed its full irrigating power, but will ultimately supply 225,000 acres with water;—the Lower Ganges Canal (which is just beginning to irrigate and not yet quite finished), which is supplementary to the canal of the same name before mentioned, and diverts all the water that the Ganges has gathered to itself between Hardwar and Aligarh, has cost about 1½ millions, and is intended to irrigate 800,000 acres;—the Soane canal, which starts from the Soane as it leaves the hills of Western Bengal and distributes its water over South Behar; it also is too recent as yet to have reached its full development, but in 1877–78 it irrigated 240,000 acres. The Sirhind canal, to utilize the waters of the Sutlej and irrigate a large area on the left bank of that river, is still under construction at a probable cost of 2¾ millions sterling. There are also a number of smaller canals in Madras and Mysore which are run off from numerous streams, such as the Caveri, the Tamrapurni, Pennar, Palar, &c. Somewhat similar works also exist in Khandesh in the Bombay Presidency.

Deltaic canals.

6. The second class are the deltaic canals on the eastern coast. The chief of these are the Caveri, the Kistna, the Godaveri, and the Mahanadi or Orissa canals. The first three of these have been splendidly successful, both financially and economically, bringing in a large revenue to the Government, and also securing the cultivation of an immense area of rice land. The statistics of irrigated area and expenditure for these canals are shown as follows:—

Canal.	Area Irrigated in 1877–78.	Cost of Construction.
	Acres.	£
Caveri - - -	820,000	116,000
Kistna - - -	235,000	463,000
Godaveri - - -	530,000	736,000
Orissa - - -	98,000	1,450,000

The cost of the works in the case of the Caveri canals shows only the outlay in restoring and improving the old irrigation channels.

Inundation canals.

7. The inundation canals are peculiar to the southern part of the Punjab and to Sindh, where the rain-fall is in the highest degree limited and uncertain; but nature

has granted that arid tract an unusual privilege in the facility with which it can obtain help from the rivers. The parts of the rivers—the Indus with its affluents, the Chenab and Sutlej—from which these canals are derived, flow in beds not much below the general level of the country. These streams rise with much regularity in May, swelled by the melting of the snow in the Himalayas; and their waters are maintained at a high level during the rains. The canals are simple earthen channels for the most part, made without the expensive machinery of masonry dams and sluices. The rivers fill them as they rise, and the water is either raised on to the adjacent fields by Persians wheels fixed at the side of the canal, where the adjacent lands are high, or distributed by natural flow over low-lying lands. They run only during the rains, and by the help of this irrigation kharif crops are raised, and in favorable years the fields can be flooded before a rabi crop is sown. The area irrigated in this way in the Punjab is about 930,000 acres; in Sindh about 1,800,000 acres.

Wells in Northern India.

8. The third and most important, because most extensive, method of irrigation is by means of wells. These are in almost all cases constructed by the agriculturists at their own cost; they can be made in almost all localities; and their existence is one of the most satisfactory evidences of well-being and security of tenure. In the alluvial soil of Upper India there is generally a water-bearing stratum, averaging from 10 to 40 feet below the surface, through which the water percolates more or less freely, sometimes bursting up in a copious spring when it is tapped. The well-sinker has no fear here of coming upon rock: his only difficulty lies in the sandy strata he may have to pierce through. If the sand is very fine, and contains much water, it can only be pierced by putting down a brick cylinder, which holds up the sand and sinks by its own weight till the spring is tapped. Such a well will cost from Rs. 100 to Rs. 500 or Rs. 600, according to the depth to which it is sunk and the diameter of the cylinder. Where the strata to be penetrated are fairly solid and dry, the well will stand with little or no artificial protection, and can often be sunk without any brick lining, and where water is near the surface at a cost of 2 or 3 Rs. When water is as close as 10 feet to the surface, or less, as it is in the river basins and in many parts north of the Ganges, the wells only last through one season and fall in in the rains. They are worked by a long lever weighted at one end, and with an earthen pot suspended at the other. Wells are hardly used in this part of the country during the rains, unless there is a prolonged interval of dry weather and it is necessary to save the valuable and delicate crops such as sugar-cane. The time when they are in constant activity is from December to February, when the wheat, barley, and other rabi crops are growing. In the Punjab wells are worked by the Persian wheel; in the North-Western Provinces, Oudh, and Behar, most commonly by a leathern bucket; a pair of bullocks supplying the motive power in both cases. A single bucket worked by two bullocks will usually water one acre in five or six days, or four acres a month; and as most crops require to be watered once a month (and garden crops oftener), a single bucket well will irrigate four acres. Next year it wil supply water to four other acres which were previously under kharif crops; and thus it is usually reckoned that on the simple two-course rotation system, by which kharif alternates with rabi, one well is sufficient for eight acres. A Persian wheel employs two pair of bullocks and irrigates about 20 acres. Profitable irrigation can hardly be carried on by means of the bucket from wells of greater depth than 45 feet, and the Persian wheel is hardly applicable at greater depths than 20 feet.

Wells in Southern India.

9. In the Central Provinces, Berar, Bombay Deccan, and Madras, where the sub-soil is often rocky, the use of wells for irrigation is much more restricted; the ordinary grain crops rarely get water, and it is only given to sugar-cane, wheat, and garden cultivation. The wells have often to be sunk through rock by blasting, and are very expensive. They are commonly worked by the pulley and leather bucket, and in Southern Madras by the lever, there called "Pycotta." The Persian wheel is frequently met with in Rajpootana, Central India, and the Jhansi division of North-Western Provinces, but not, as a rule, further south.

Irrigated area: in the Punjab;

10. In the Punjab, out of 21 millions of cultivated acres, over 5½ millions are irrigated, as follows—

	Acres.
By wells	3,176,000
„ perennial canals	740,000
„ inundation canals	933,000
„ small channels from rivers and streams	642,000
„ ponds	143,000
Total	5,614,000

11. In the North-Western Provinces and Oudh the cultivated area is 36 million acres, and of these 11½ millions, or one-third, are irrigated. The details are as follows:— In the North-Western Provinces and Oudh;

—	North-Western Provinces.	Oudh.	Total.
	Acres.	Acres.	Acres.
Wells	4,480,000	1,314,000	5,794,000
Canals (1878–79)	1,694,000	—	1,694,000
Rivers and ponds	1,985,000	1,982,000	3,967,000
Total	8,159,000	3,296,000	11,455,000

12. Concerning Bengal the information is very deficient. The area irrigated in 1877–78 by canals was 360,000 acres, due to the Soane, the Orissa, and the Midnapore Canals; in Behar the land on which sugar-cane, opium, and vegetables are grown is usually irrigated by wells, and this is estimated at 600,000 acres. Thus the total irrigation is one million out of a probable total cultivated area of 54 million acres. In this province the natural water supply in the numerous river channels, combined with the inundations and the abundant rain-fall, render artificial irrigation hardly necessary, and wells are inapplicable to the prevailing rice cultivation. In Bengal;

13. In the Central Provinces there is hardly any irrigation, except in the Chanda, Bhandara, Bilaspur, and Sambalpur districts, where rice is grown and large tanks are constructed for the storage of water: these irrigate about 650,000 acres. In all the rest of the province only about 120,000 acres are irrigated from wells, and these are mostly fields in which sugar-cane and garden crops are grown. The black soil is retentive of moisture, and does not need an artificial supply of water in ordinary years to grow the common winter cereals and pulses. In the Central Provinces;

14. In Bombay irrigation is as little practised as in the Central Provinces, and canal irrigation is very little developed. Well water is used for garden crops and sugar-cane only, and tank water for rice in the South Mahratta Country: the habit of using tank or canal water for ordinary crops has yet to be learnt. The Government irrigation works supplied water in 1876 to only 17,000 acres, and to 25,000 in 1877, though they would have sufficed for the irrigation of about 200,000 acres. The statistics of other irrigation are extremely incomplete: no attempt is made to record the area irrigated in alienated lands, and the Government land is only returned as irrigated if it pays an extra assessment on account of the water-supply. No record is kept of land irrigated by a ryot from a well made at his own expense. According to the returns supplied, about 450,000 acres are irrigated from wells and streams in the whole province; but there is no doubt that the amount is really greater than this. In Bombay,

In Sindh the area irrigated by the canals led off from the Indus is about 1,800,000 acres, the extent depending somewhat on the height of the river floods. About 500,000 acres are cultivated without canal irrigation, but most of this is fertilised directly by the overflow of the river, without needing the intervention of canals. Only a comparatively small area of land on the slopes of the Western Hills grows crops which are dependent on the scanty and precarious rain-fall. and Sindh;

15. In Madras irrigation is far more extensively practised than in any other part of Southern India, and probably this presidency is as well protected as the North-Western Provinces or Punjab, although the entire irrigated area is not known, since here, as in Bombay, the practice is to record as irrigated only that land which is specially assessed under that designation, not that which is irrigated from private sources, such as wells made at the ryot's expense; and there is almost complete want of information as to the area of irrigated zemindari lands. Bearing this defect in mind, it appears that the total area assessed at irrigated rates is 5,322,000 acres, or about 17 per cent. of the cultivated area (31 million acres). Of this, 2 million acres are supplied by the Government irrigation works, of which 1,700,000 acres are due to the Caveri, Kistna, and Godaveri deltaic canals. The remaining 3 million acres are supplied almost entirely from tanks. On the Government lands (putting the great zemindaris aside) there are about 400,000 wells, and the area irrigated by them can hardly be less than 2 million acres, which, however, is not assessed as irrigated. If this is added to the figures stated above, it makes a total of 7⅓ million acres, or nearly 25 per cent. of the cultivated area in Government lands, which approaches very closely to the proportion in the North-Western Provinces and Oudh, and exceeds that of the Punjab. There is, however, In Madras.

a very large unprotected area, especially in the districts of Bellary, Karnul, and Cuddapa. It is here that famine has always been most severe; and here the unsuccessful Madras Irrigation Company's canal has been constructed in the hope, vain as yet, that it may protect this region against drought.

Summary.

16. The preceding figures are summed up in the following table, which shows for each province the extent of cultivation and the area ordinarily irrigated in a favourable year:—

Province.	Area ordinarily cultivated.	Area ordinarily irrigated.	Per-centage of irrigation to cultivation.
	Acres.	Acres.	
Punjab	21,000,000	5,500,000	26·2
North-Western Provinces and Oudh.	36,000,000	11,500,000	32·
Bengal	54,500,000	1,000,000	1·8
Central Provinces	15,500,000	770,000	5·
Berar	6,500,000	100,000	1·5
Bombay	24,500,000	450,000	1·8
Sindh	2,250,000	1,800,000	80·
Madras	32,000,000	7,300,000	23·
Mysore	5,000,000	800,000	16·
Total	197,250,000	29,220,000	14·8

Of the irrigated land, about 8 million acres are protected by the better class of irrigation works, and about 12 millions by wells.

Section VI.

Population.

Density of the population.

In the country immediately under British rule there are, on the average, 211 persons to the square mile: if the Feudatory States be included the average is 165 to the square mile. In order of density the provinces stand thus:

	Number of Persons per Square Mile.
Oudh	468
Bengal	397
North-Western Provinces	378
Madras	226
Mysore	187
Punjab	173
Bombay	131
Berar	129
Ajmir	119
Assam	99
Central Provinces	91
Coorg	84
British Burma	31

The average in the case of Bengal and the North-Western Provinces is brought down by the large area of mountainous and thinly peopled hill country. In the Punjab the large desert tracts produce a like result.

In Bengal there are 17 districts in which the population is over 500 to the square mile, 13 in the North-Western Provinces, 7 in Oudh, 3 in the Punjab, 1 in Madras, and 1 in Bombay.

Rural and urban.

2. The great preponderance of this population is rural; in Bengal, North-Western Provinces, and Oudh, 93 per cent. of the inhabitants live in villages, and only 7 per cent. in towns containing over 5,000 people.

3. The 37 millions of houses occupied by the people of British India are grouped into 493,444 townships or villages, giving an average of 5·14 people to a house, 75 houses and 386 persons to a village. The villages are largest in Southern India, the inhabitants averaging 589 in Bombay and 564 in Madras. In the Punjab the average is 493, Oudh 453, Berar 392, North-Western Provinces 339, Bengal 338, Central Provinces 260, Mysore 258, and British Burmah 195. Taking the whole of India there is rather more than one village or town for every two square miles. Of the whole number, only 1,490, or 3 in 1,000, have populations over 5,000. Of these, 1,070 contain less than 10,000, 374 between 10,000 and 50,000, and 44 above 50,000. The population of these 44 is 5½ millions, or 3 per cent. of the total population. Villages and towns.

4. The proportion of the sexes is believed to be 98 millions of males to 92½ millions of females, or 100 to 94. As to ages, there are 123 millions of adults above 12 to 67 millions of children under 12, the proportion being 100 adults to 54 children. Amongst adults there are 99 females to 100 males; amongst children 87 girls to 100 boys. The high ratio of children to adults is indicative of high rates of reproduction and mortality. Sexes and ages.

5. About 140 millions of the inhabitants of British India are Hindus, 40 millions are Mahommedans, and 9 millions of all other religions. Mahommedans form 53 per cent. of the population in the Punjab, and 32 per cent. in Bengal; elsewhere, the Hindus are by far the preponderating element. Buddhists are hardly found out of Burma. The Christians are 900,000 in number, of whom three-fifths belong to Madras. Religion.

6. The Bengali language is spoken by about 37 millions in Bengal; Uriya by about 5 millions in Orissa and Sambalpur; Hindi (with more or less dialectic differences) by about 20 millions in Bengal, 16 millions in the Native States, 4 millions in the Central Provinces, 42 millions in the North-Western Provinces and Oudh, and 10 millions in the Punjab; Pushtu and Punjabi are spoken by about 7 millions in the latter province; Mahratti is spoken by about 2 millions in the Central Provinces, 2 millions in Berar, and 5 millions in Bombay; Guzerati by about 3 millions in Bombay; Sindhi by 2 millions in Sindh; Kanarese by 3 millions in Bombay and 4 in Mysore; Telugu by about 12 millions, and Tamil by about 15, in Madras. Language.

7. The following table is an estimate of the proportions into which the adult male population is divided as regards employment:— Occupations.

——	Per cent.	Estimated Number of Adult Males.
Professional, including Government service	3·6	2,232,000
Domestic	6·2	3,844,000
Agricultural	56·2	34,844,000
Commercial	5·2	3,224,000
Industrial	13·1	8,122,000
Labourers	12·3	7,626,040
Independent and non-productive	3·4	2,108,000
	100·	62,000,000

Of the 2,232,000 classed as professional, about one million are employed under public authority, and include 223,000 police and village watchmen and 571,000 municipal, local, and village officials; about another million are employed in private professions, 629,000 are recorded as being engaged in religious or charitable duties, 189,000 in literature, science, and education, 218,000 in the fine arts.

8. 34¾ millions or 56·2 per cent. are returned as agricultural. As to this it must be remembered that— Agriculturists.

(1.) The agricultural population is not restricted to adult males, large numbers of women and children being engaged in agriculture,

(2.) Many artizans and professionals, besides their trade, own and cultivate land, and must be added to the population that lives on the soil, as must also the greater part of the labouring population:

It is probable that 90 per cent. of the rural population, or rather more than 80 per cent. of the total population, is closely connected with the land.

9. The commercial class is returned as numbering nearly 3¼ millions of adult males; of these nearly 2½ millions are engaged in trade, mainly as general merchants and shopkeepers, and a quarter of a million are bankers and money-lenders. The rest, in number about 1 million, are carriers, such as boatmen, cartmen, bearers of palan- Traders.

quins, or porters; and 396,000 are connected with navigation, their numbers being largely recruited from the boatmen who ply on the rivers of Bengal.

Artizans. 10. The industrial and artizan class numbers 8 millions; its most important divisions are the class engaged in making fabrics and articles of dress, numbering 3¼ millions, and the workers in metals, minerals, &c., including potters, number 1,373,000. These two classes, weavers and potters, are conspicuous among the classes upon whom famine presses most heavily.

Labourers. 11. Most important of all, however, for the purposes of famine relief administration, is the class of labourers, numbering over 7½ millions, the great majority of whom are agricultural labourers; of these, 2½ are in Bengal, 2 millions in Madras, 1½ millions in the North-Western Provinces. The list is concluded with a class of "non-productive" persons, amongst whom a million "beggars or paupers" may be taken as representing the number of persons dependent in ordinary times on the charity of the public. Thus the classes most liable to suffer from famine, the labourers, beggars, weavers, and potters, amount in number to about 13 millions of adult males, or a population of nearly 40 millions, including women and children, or 20 per cent. of the total population of British India.

Beggars.

Extent to which vital statistics exist. 12. One of the most important questions, for purposes of administration, is the rate at which population increases. Some rough estimates which have been on several occasions made in Bengal lead to no precise conclusion. In the North-Western Provinces a census taken in 1872 showed an increase on the population of 1865 at the rate of ·52 per cent. per annum, but the increase is probably in part attributable to more accurate registration, while the famine of 1868 must have affected the normal growth of the population in parts of the province. In the Central Provinces an annual increase of ·33 per cent. was shown by the census to have taken place between 1867 and 1872. In Burmah the population is believed to have increased by three-quarters of a million, or 30 per cent., in the years 1862–72. In Madras the quinquennial returns of the village accountants, not comparable in accuracy with the census enumeration, but not wholly useless, indicate an increase from 13½ millions in 1822 to 31½ in 1871.

Rate of increase. 13. In default of definite information as to the increase of population, which we may hope will be given by the Census of 1881, when its figures are compared with those of 1872, the only answer that can be given to this question must be drawn from the statistics of births and deaths. The registration of deaths was first commenced in the North-West Provinces and the Punjab in the year 1865, and the system has been gradually extended to all parts of British India, Bengal being the province in which it was introduced latest of all, in 1876. The registration of births has not as yet been undertaken in all our provinces. They are recorded in Madras, Bombay, the Central Provinces, and Berar, and they have begun to be recorded during the current year in the North-West Provinces and Oudh, and the Punjab, though no returns from these provinces have as yet been published. In Bengal and Mysore births are not registered. There is no registration of marriages in any part of India, except for the Christian population.

Results of registration. 14. In the earlier years of the registration of vital statistics the record was extremely defective, but as pressure was applied, and the village and other officials became accustomed to the preparation of these returns as an integral portion of their duties, they became gradually less incomplete, and the average yearly ratio of registered births and deaths increased. Except, however, in some well-managed municipalities, the registration is still very far from being complete, as the following figures will testify. The average yearly ratio of deaths and births per mille, according to the published returns, has been as follows:—

	Rate per Mille.	During the Years
Deaths in the Punjab	23·1	1869–77
„ North-West Provinces and Oudh	20·2	1871–77
„ Bengal	17·36	1876–78
„ Central Provinces	26	1874–77
„ Berar	29·4	1871–77
„ Bombay	21·7	1871–76
„ Mysore	10	1872–75
„ Madras	18	1869–76
Births in Central Provinces	39	1876–78
„ Berar	39·25	1876–77
„ Bombay	23·4	1876
„ Madras	21·3	1875–76

It is allowed on all hands that these figures are very much short of the truth, but the data hardly exist as yet for saying, even approximately, what the probable true annual ratios are. In Madras the Sanitary Commissioner considers that the figures in the registration tables do not account for more than two-thirds of the actual mortality, and as the returns in the year before the famine, 1876, amounted to a death-rate of 24 per mille, he would probably put the true death-rate at 36 per mille. In Bombay, the Sanitary Commissioner and the Government have estimated the true death-rate at 35 per mille. In the Central Provinces and Berar it is probably higher. As to birth-rates, the Sanitary Commissioners of Madras and of the Central Provinces have respectively estimated them at 38 and 55 per mille for an average year, figures which show a pretty wide margin of discrepancy. All that can be said at present with certainty is that the true ratios are very considerably in excess of those recorded in the registration tables.

Section VII.

Incidence of Taxation.

N.B.—The Pound sterling is here used to represent 10 rupees.

1. The gross revenue received by the Government of India in the year 1878–79 amounted to 65,207,694*l.*, or in round numbers 65 millions. Of this sum, however, 24 millions may be regarded as in no proper sense raised by taxation; one large part of it, 9 millions, was contributed by the sale of opium, another considerable portion, 7 millions, was earned by productive works, and most of the rest consists of the gross receipts in reduction of the cost of departments which on the whole bring a charge against the Government. Of the 41 millions which remain when these deductions have been made, 22 millions were furnished by land revenue, and only the remaining 19 millions can be treated as taxation properly so called. The detailed figures for this year are as follows:— Revenues how far derived from taxation.

Class I.—Receipts other than Taxation.

	£
Tributes and contributions	703,660
Forests	605,433
Opium	9,399,401
Mint	172,335
Post Office	911,806
Telegraph	426,694
Law and Justice (Fines, &c.)	647,130
Police	211,108
Marine	250,595
Education	147,425
Interest	628,367
Receipts in aid of superannuation allowances, pensions, &c.	675,258
Miscellaneous	659,236
Army	974,773
Ordinary Public Works	571,076
Gross Receipts from Productive Public Works (Canals and Railways)	6,968,909
	£23,953,206

Class II.

	£
Land Revenue	22,450,803

Class III.—Taxation Proper.

	£
Excise	2,619,349
Stamps (Judicial and Commercial)	3,110,540
Customs	2,326,561
Salt	6,941,120
Assessed Taxes	900,920
Court and Registration Fees	266,360
Provincial Rates	2,638,835
	£18,803,685
Grand Total	£65,207,694

Land revenue.

2. The land revenue is a source of income which in India must be distinguished from taxation properly so called, as, by immemorial and unquestioned prescription, the Government is entitled to receive from the occupier of the land whatever portion it requires of the surplus profit left after defraying the expenses of cultivation. This right was and is very often exercised by the Native Governments to the extent of taking from the occupier the whole of this surplus. But the Government under British rule, instead of sweeping off the whole margin of profit, in no case takes more than a fixed share, which is estimated at from 3 per cent. to 7 per cent. of the gross out-turn, or 50 per cent. either of the net produce or of the rent. In the case of the permanently settled districts, the amount to be paid by the landholders was fixed by Government in perpetuity; and through the increase in the area under cultivation, and in the letting value of land, that amount, which was then from 90 to 100 per cent. of the estimated rent-roll, has fallen to about one-third or one-fourth of the rental actually received. The land revenue may therefore with more propriety be regarded as a rent paid by a tenant, often a highly-favoured tenant, to the paramount owner, than as a tax paid by the owner to the State. In 1878–9 considerable arrears were collected, but the average amount is about 21 millions. From this, however, deductions must be made, partly on account of the portion received on account of irrigation, and partly on account of the sums alienated to various grantees, so that the land revenue really received by Government may be stated as follows:—

	£
Punjab	1,910,000
North-Western Provinces	4,165,000
Oudh	1,400,000
Bengal and Assam	4,050,000
Central Provinces	600,000
Bombay*	2,970,000
Madras†	3,160,000
Burmah	820,000
Total	£19,075,000

Local cesses.

3. The provincial rates are local cesses or taxes, computed either on the rental or assessment of his holding, to which the landowner in every part of India is liable, in addition to the land revenue. They amounted in 1878–9 to 2,638,835*l.*, but the general amount may be taken as about 2,560,000*l.* If these be added to the average

* In the Imperial accounts of 1878–9, Bombay is credited with a gross revenue of 3,700,000*l.* But of this about 730,000*l.* are not actually collected, but are retained by village officers, inamdars, &c.; the balance, or 2,970,000*l.*, is the actual revenue collected.

† In Madras the actual land revenue collected is on an average about 4,530,000*l.* But of this only 3,160,000*l.* is the true land revenue; the balance, 1,369,000*l.*, is the sum due on account of water supplied by the irrigation works kept up by Government, of which, however, only 700,000*l.* is shown in the Public Accounts as Productive Public Works income, being the proportion received on account of the works for which regular Revenue accounts are kept.

landrnue, the sums paid by the landowning classes in respect of the land would follows:—

	£
Punjab	2,105,000
North-Western Provinces	4,828,000
Oudh	1,478,000
Bengal and Assam	5,005,000
Central Provinces	642,000
Bombay	3,210,000
Madras	3,520,000
Burma	847,000
Total	£21,635,000

4. The excise duty, which is the first on the list of items constituting the taxation proper levied by the Imperial Government, contributes in average years 2½ millions, and may be regarded as paid mainly by the lower classes, to whom the consumption of drugs and spirits is for the most part confined. Stamps produce nearly 3 millions, two-thirds of which falls on litigation, and one-third on commercial documents. The distribution of these two taxes, taken at their ordinary production in the different provinces (which differs slightly from the actual produce for 1878–79), is as follows:— Excise and stamps.

——	Excise.	Stamps.
	£	£
Punjab	105,000	270,000
North-Western Provinces	230,000	370,000
Oudh	80,000	100,000
Bengal and Assam	850,000	1,120,000
Central Provinces	145,000	100,000
Bombay	400,000	450,000
Madras	610,000	500,000
Burmah	175,000	70,000
Total	2,595,000	2,980,000

The incidence of the excise duty on the whole population is ·0135 of 1*l.*, or 3¼*d.* per head; that of the stamp duty is ·0161 of 1*l.*, or about 3¾*d.* per head.

5. Customs, the receipts under which have of late years considerably declined, owing to the reductions in the tariff, produced about 2¼ millions. The import duties are levied on piece goods, liquors, metals, and many other articles, the chief item being cotton manufactures, which paid 900,000*l.*; these are used by all but the very lowest classes. The duties on European stores, wines, and articles of apparel fall mainly on English residents in the country. The export duties brought in a little over half a million, and are now levied exclusively on rice; 300,000*l.* were paid on the rice exported from Burmah, and 150,000*l.* on that from Bengal. The incidence of the customs duties on the general population in 1878–9 was ·014 of 1*l.*, or 3⅓*d.* per head. Customs.

6. The salt duty is levied partly as a customs duty on imports by sea, and partly by the sale of salt under a Government monopoly; it is no longer imposed as a transit duty on salt carried from one part of India to another. The amount received depends therefore on the total consumption as well as on the rate of duty or price charged by the Government; and the greater facilities of supply, in which the fiscal changes and the development of railways have in the last few years resulted, have lowered the price of salt over the greater part of India, and thus by increasing consumption have led to larger realisations from the salt duty. The following table shows the income from both customs and salt during the last 12 years. The receipts from salt alone in 1878–9 were 7 millions. As the tax is now borne, in part at least, by the inhabitants of Native States as well as by those of British districts, the incidence ought Salt.

to be calculated on the entire population of India, or 240 millions, and it is at ·029 of 1*l.*, or 6¾*d.* per head.

Year.	Customs Duty.	Salt Duty.
	£	£
1868–69	2,692,755	5,588,240
1869–70	2,429,185	5,888,707
1870–71	2,610,789	6,106,280
1871–72	2,575,990	5,966,595
1872–73	2,653,890	6,165,630
1873–74	2,628,495	6,150,662
1874–75	2,678,479	6,227,301
1875–76	2,721,389	6,244,415
1876–77	2,483,345	6,304,658
1877–78	2,622,296	6,460,082
1878–79	2,326,000	6,941,000
1879–80 (estimated)	2,248,000	7,000,000

Income or license tax.

7. Assessed taxes (imposed under the form of income or license taxes) have varied greatly since their first imposition. In 1868–9 an income tax of 1 per cent. on incomes above Rs. 500 was imposed; this was raised in 1868–9 to 2, and in 1870–1 to 3 per cent. In 1871–2 it was lowered to 2 per cent., and in the following year the minimum of assessable income was raised to Rs. 1,000 per annum. In 1873 it was abolished. In 1877–8 a license tax was imposed in Bengal and the North-Western Provinces on traders, and in 1878 it was extended to all India. The produce of the tax in that year was 900,000*l.*, and in 1879–80 it was about 800,000*l.* In the present year, 1880–81, it has been again reduced, and it is estimated to yield 535,000*l.*

Total results.

8. The total taxation (restricting the term in the sense already explained in the beginning of this section) raised in the country, from a population of about 185 millions, having been 18,803,685*l.* in 1878–79, its incidence was ·1*l.*, or 2*s.*, per head. Allowing for other subsequent changes, the taxation proper of British India may be taken, in round numbers, at 18,500,000*l.*; and adding land revenue, the total burdens may be put at 37,500,000*l.*, or a fraction over 4*s.* per head. The following table shows what the amount and incidence of these burdens is in each province:—

Province.	Population.	Land Revenue, Local Cesses, and Taxation proper.	Incidence per Head, in Shillings.
		£	*s.* *d.*
Punjab	17,605,000	3,460,000	4 0
North-Western Provinces and Oudh	41,975,000	9,436,000	4 5
Bengal and Assam	66,855,000	10,695,000	3 2½
Central Provinces	8,215,000	1,347,000	3 2½
Bombay and Sindh	16,230,000	4,960,000	6 0
Madras	31,280,000	6,370,000	4 0
Burmah	2,740,000	1,242,000	9 7
Total	184,900,000	37,510,000	4 0

In contrasting these figures it must be remembered that as the apparent incidence of taxation per head is small in proportion as the population is large, such a standard does not necessarily give a true indication of the relative weight of the public burdens. Where, for instance, the agricultural population is very dense, their numbers may be excessive in relation to the productive power of the soil they occupy, and though the apparent incidence per head be small the actual burden may be heavy; and, on the other hand, a higher apparent incidence may be really less heavy with a smaller

...tion. The local standards of prices and wages will also greatly affect suc... ...sons, as in the case of Burmah.

9. ... a tenth of the population of British India resides in towns where municipalities exist and municipal taxation is levied. Municipal taxation.

Its amount and incidence on the town population are as follows:—

	Municipal Taxation.	
	Amount.	Incidence per Head.
	£	£
Punjab	189,000	·092
North-Western Provinces	202,000	·054
Oudh	37,000	·061
Bengal and Assam	393,000	·11
Central Provinces	71,000	·117
Bombay	193,000	·106
Madras	74,000	·062
Burmah	55,000	·2
Total	1,214,000	·09

10. Assuming that the class which enjoys some interest in the soil is about 55 per cent. of the population, that agricultural labourers are about 20 per cent., artizans 10 per cent., and traders, with the official, professional, and other classes, 15 per cent.; that land revenue and cesses are paid by the landed classes, excise by labourers and artizans, stamps by traders and others classed with them, and the landed class, customs by the landed class, traders and others, and artizans, license tax by traders and others, and salt tax by all classes alike, the taxation of the country and its incidence on each class might be stated as follows:— Incidence on different classes.

Class.	Population.	Land Revenue and Cesses.	Incidence per Head.	Excise.	Incidence per Head.	Stamps and Registration.	Incidence per Head.	Customs.	Incidence per Head.	Salt.	Incidence per Head.	License Tax.	Incidence per Head	Total.	Total Incidence per Head.
	*	£	†	£	†	£	†	£	†	£	†	£	†	£	†
Landed	101,750	21,635	·211	—	—	1,615	·016	843	·008	3,850	·038	—	—	27,943	·273
Agricultural labourers	37,000	—	—	1,730	·047	—	—	—	—	1,400	·038	—	—	3,130	·085
Artisans	18,500	—	—	865	·047	—	—	283	·015	700	·038	—	—	1,848	·1
Traders, officials, and professionals	27,750	—	—	—	—	1,615	·058	1,124	·04	1,050	·038	800	·029	4 539	·164
Total	185,000	21,635	—	2,595	—	3,230	—	2,250	—	7,000	—	800	—	37,510	·2

* Three 0's omitted. † The decimals represent decimals of 1l.

This statement may be put in a more easily intelligible form by saying that the general incidence of all taxation, including the land revenue in this term, on the whole population is four shillings a head. The landed classes pay about five shillings and sixpence (44 annas) per head; but, excluding the revenue they pay for their land to the State, their share of taxation is one shilling and ninepence (14 annas) per head. The agricultural labourers pay taxes on their liquor and salt, amounting to one shilling and eightpence (or 13½ annas) per head, or each family pays about a fortnight's wages in the year. The artisans pay about two shillings (16 annas) each, or about the average earnings of five working days. Traders pay three shillings and threepence (26 annas) each. But any native of India who does not trade or own land, and who chooses to drink no spirituous liquor and to use no English cloth or iron, need pay in taxation only about sevenpence a year on account of the salt he consumes personally; and on a family of three persons the charge amounts to 1*s.* 9*d.*, or about four days' wages of a labouring man and his wife.

Section VIII.

*Trade.**

1. The following table shows the progress of the foreign trade of India during the last 45 years. The figures represent the average annual total imports and exports Statistics of Indian trade

* This section is compiled from the Annual Returns of Trade and Navigation of British India and from the reviews of that trade written by Mr. J. O'Conor, Assistant Secretary to the Government of India in the Statistical Branch of the Financial Department.

for quinquennial periods, the actual figures for the last six years being separately.

Dates.	Annual Imports.			Annual Exports.			Excess of Exports above Imports.	Per-centage of Excess on Total Exports.
	Merchandise.	Treasure.	Total.	Merchandise.	Treasure.	Total.		
Periods of 5 years.	£	£	£	£	£	£	£	
1834–39 -	4,971,000	2,345,000	7,316,000	11,072,000	251,000	11,323,000	4,007,000	35
1839–44 -	7,691,000	2,762,000	10,453,000	13,790,000	463,000	14,243,000	3,800,000	27
1844–49 -	9,136,000	3,073,000	12,209,000	15,675,000	1,321,000	16,996,000	4,787,000	28
1849–54 -	11,059,000	4,793,000	15,851,000	19,023,000	994,000	20,017,000	4,116,000	21
1854–59 -	15,577,000	11,275,000	26,852,000	24,925,000	922,000	25,847,000	*—1,005,000*	—
1859–64 -	23,971,000	17,092,000	41,063,000	42,147,000	1,023,000	43,169,000	2,106,000	5
1864–69 -	31,697,000	17,618,000	49,315,000	55,863,000	1,802,000	57,665,000	8,350,000	14
1869–74 -	32,256,000	8,265,000	40,521,000	56,235,000	1,590,000	57,826,000	17,306,000	29
1874–79 -	38,364,000	9,858,000	48,222,000	60,325,000	2,810,000	63,135,000	14,913,000	24
Single years.								
1874–75 -	36,222,000	8,141,000	44,363,000	56,359,000	1,625,000	57,985,000	13,622,000	24
1875–76 -	38,892,000	5,301,000	44,192,000	58,091,000	2,200,000	60,292,000	16,100,000	27
1876–77 -	37,441,000	11,436,000	48,877,000	61,014,000	4,030,000	65,044,000	16,167,000	25
1877–78 -	41,464,000	17,355,000	58,820,000	65,222,000	2,211,000	67,433,000	8,613,000	13
1878–79 -	37,801,000	7,057,000	44,858,000	60,938,000	3,982,000	64,920,000	20,062,000	30
1879–80 -	41,173,000	11,655,000	52,827,000	67,211,000	2,035,000	69,246,000	16,419,000	24

Comparison of Indian trade with that of England

2. The trade of India at the present time approximates in its general amount to what that of Great Britain was between 1830 and 1840, but with the difference that the Indian exports show a large excess over the imports, a condition of British trade which finally ceased about 1825, after which year imports began to prevail more and more, until at length they exceeded the exports by the enormous value of 150 or 160 millions sterling, though now the excess is somewhat less.

Excess of exports due to investment of capital and to cost of administration.

3. Supposing the values to be tolerably correctly recorded in the trade returns, which is believed to be the case, the excess of the value of exports over imports indicates the entire sum which India has to send to England to pay for all charges connected with the administration, the interest on English capital invested in India, and the profits of private trade and savings from salaries remitted by Englishmen, *minus* the new capital sent out from year to year for investment in the country. The period from 1854 to 1869 was the time when the capital for the guaranteed railways was being raised; about 110 millions were borrowed or raised in England, 30 millions for the purposes of the Government, and 80 millions subscribed as railway capital for investment or expenditure in India, and there was hardly any surplus of exports at this time. In 1869 the construction of guaranteed railways was coming to a close, and the system of construction by the State was beginning, and from that time India, instead of drawing large sums of capital from England for investment, had to pay many millions a year as interest. The great rise in the export trade dates from that time, and for the last ten years the excess of exports has averaged about 16 millions sterling, of which perhaps half may be regarded as the return on capital invested in railways and commercial enterprise, and half as the charge on account of the administration of India by England, which has to be met in England.

The benefit of such investments to India.

4. So far as the excess of exports is due to the investment of English capital in India, it is difficult to conceive conditions under which the remittance of interest on foreign capital judiciously applied could be onerous to the country which pays it, for the investment must necessarily have led to the outlay of a larger sum than the interest sent away, and the balance of what is thus produced remains in the country. Thus, in the case of the guaranteed railways, about 100 millions of capital have been raised and spent in India, and about 5 millions a year have to be paid in England as interest on that capital; the railways pay those 5 millions by earning a gross income of 10 millions, 5 of which are spent in wages and afford occupation to the people of the country. The people who voluntarily pay the 10 millions for the use of the railways are themselves largely benefitted by them, and would have had to pay much more had they been obliged to use ruder means of conveyance. The remittance of 5 millions of interest to England, therefore, indicates the investment of a sum of money in India which in numerous ways has conferred both direct and indirect benefits on the country. The same may be said of the smaller investments in tea and coffee, indigo, cotton mills, and other industries which are mainly supported by British capital, the interest remitted on which does not imply the impoverishment but the enrichment

of the country. As to the other half of the excess, which is due to the cost of English administration, there can hardly be room for doubt that it is to the advantage of India to pay the sum really necessary to secure its peaceful government, without which no progress would be possible; and so long as this condition is not violated it does not seem material whether a part of the charge has to be met in England, or not.

Provincial distribution of trade.

5. The provincial distribution of the foreign trade, taking the average of the three years 1875–8, and including treasure, has been as follows:—

Province.	Chief Port.	Imports.	Exports.	Total Value.	Per-centage on Total Trade of India.
		£	£	£	
Bengal	Calcutta	20,838,000	27,486,000	48,324,000	43
Bombay	Bombay	21,386,000	24,095,000	45,481,000	40
Madras	Madras	3,985,000	6,779,000	10,764,000	10
Burmah	Rangoon	2,069,000	4,091,000	6,160,000	5·5
Sindh	Karachi	353,000	1,349,000	1,702,000	1·5

Although about 300 places along the 9,185 miles of the India coast line are recognised as ports, the foreign trade is practically concentrated at the five capital ports mentioned in the above table. Bengal and Bombay had 83 per cent. of the whole trade between them. The total imports into Bombay slightly exceed those into Bengal, while the exports from Bengal are larger than those from Bombay; but excluding treasure, which is almost exclusively imported viâ Bombay, the trade of Bengal in merchandise alone is much the larger of the two, and shows more tendency to increase. Rangoon is now the most rapidly rising of all the ports, the total imports and exports having nearly trebled themselves in the last 11 years.

Countries with which trade is conducted;

6. The following table shows the value and per-centage of the trade in 1877–8, with the countries which deal most with India:—

	Value of Trade.	Per-centage.
	£	
United Kingdom	75,933,000	61
China	16,822,000	14
France	6,597,000	5
Straits Settlements	4,087,000	3
Ceylon	3,567,000	3
Italy	2,305,000	2
United States	2,212,000	2

The trade with no other country comes up to 2 millions yearly.

and general character of the trade.

India exports opium, cotton twist, and gunny bags to China; the imports (of which the value is one-eighth only of the exports) are copper, silk (raw and manufactured), sugar, and tea. The exports to the Straits Settlements are mostly for China. Rice is sent to Ceylon. Mauritius receives rice from India and sends back sugar. With France there is a large indirect trade viâ England, though the direct trade does not increase; the chief exports are coffee, cotton, indigo, oil seeds, and raw silk; the chief imports, apparel and liquors. To the United States, indigo, hides, raw jute, and gunny bags, lac, saltpetre, and linseed are exported; while ice, kerosine oil, and cotton goods are imported. Italy sends coral, glass beads and false pearls, spirits and wines, and silk goods; receiving in return raw cotton and silk, hides, and oil seeds. The direct trade with Italy has increased by 33 per cent. in the last five years, consequent on the opening of the Suez Canal.

Imports into India.

7. The principal imports are cotton twist and piece goods, coal, liquors, and metals. The following table shows the average annual value for the last five years of such imports as exceed 500,000*l.* in the year:—

	£
Cotton twist and manufactures	18,895,000
Metals	3,265,000
Liquors	1,336,000
Coal	835,000
Sugar	819,000
Woollen goods	780,000
Railway plant and rolling stock	757,000
Silk goods	747,000
Silk, raw	653,000
Apparel	565,000
Salt	556,000

Cotton goods. The cotton goods imported are chiefly twist and piece goods. Of cotton twist, the average value has been about 2¾ millions sterling; the import has shown no tendency to increase of late, the production of the coarser qualities by the Indian mills being very large. In piece goods the kinds called grey goods largely predominate; the average value for five years has been 10,460,000*l.* Of the metals imported 80 per cent. is iron; and copper is the next most important item. Under the head of liquors the imports, whether of beer, spirits, or wines, show a tendency to decrease; the diminution in the case of beer being mainly due to the growing production of the hill breweries. About 2 million lbs. of silk, valued at 6½ million rupees, and about 7½ million yards of pure and mixed silk goods, valued at nearly a rupee a yard, were imported from China and Japan. The use of English coal (of which on an average 460,000 tons were imported) is falling off in Bengal, where coal mining is largely developed, but is increasing in Bombay, where the cotton mills are creating a new demand for it, the deposits in Central India being too far off to supply it at a sufficiently low price. Sugar comes mostly from Mauritius and China, and goes to Western India; the imports are fluctuating in amount; the export trade, chiefly from Bengal, is of almost equal value. This is an article which, if a little more skill were shown in its production and manufacture, India could at least supply to meet its own wants.

Metals. Liquors. Silk. Coal. Sugar.

Exports from India. 8. The average value during the last five years of the principal articles exported from India has been as follows:—

	£
Opium	12,175,000
Cotton, raw	11,515,000
„ manufactured	905,000
Grain and pulse	7,963,000
Oil seeds	5,210,000
Jute, raw	3,201,000
„ manufactured	663,000
Hides	3,095,000
Indigo	2,973,000
Tea	2,579,000
Coffee	1,432,000
Wool	1,036,000

Opium. The quantity of opium exported to China has risen from an average of 74,239 chests in 1854–9 to 92,797 chests in 1874–9, and the average value per chest has risen from 106*l.* to 131*l.* The export is nearly equally divided between Bombay and Calcutta.

Grain. The quantity of grain and pulse exported touched its highest point in 1876–7, when it reached 26,210,000 cwts., and had fallen to 22,887,000 cwts. in 1878–9. The two chief items are rice and wheat. The export of rice has varied from 17¼ million cwts. in 1874–5 (the year following the Bengal famine) to 21¼ millions in 1878–9. The export to Europe amounts on the average to 11,600,000 cwts., that to Mauritius, the Cape, and other colonies to 2,400,000 cwts., and the balance is taken by Arabia and Persia. Wheat reached its highest figure, 6⅓ million cwts., in 1877–8, and fell to one million cwts. in 1878–9, which is about the quantity exported in 1874–5 before the increase began.

Cotton. Of cotton the largest export known was 809 million pounds in 1871–2, at an average price of 4 annas 1 pie per lb.; it has declined continuously ever since 1874–5, and the export of 1878–9 was 332 million pounds, at an average price of 3 annas 10 pie per lb., or a total value of about 8 millions sterling. The greatest value of the export was in 1865–6, when it amounted to 37½ millions sterling, the quantity exported being 803 millions of pounds, at a price of 11 annas 5 pie per lb. Less than half the cotton now exported is taken by England. The area under this crop has decreased from 11½ million acres in 1874–5 to nearly 9 million acres, and with an average outturn of about 80 lbs. per acre of a poor staple India can hardly contend with America, which with an acreage of 13 millions produces 200 lbs. an acre of a finer staple. The Indian cotton continues, however, to be used for purposes for which American cotton is too dear and too good, such as weaving coarse clothes, lamp-wicks, quilting and stuffing, &c. The manufacture of cotton twist and piece goods by the Indian mills continues to flourish, the export of these articles being chiefly to China and Japan. There are now 58 cotton mills in India, with 1½ million spindles and 12,000 looms.

which employ 40,000 persons. The industry has sprung up rapidly, and is still in its infancy; and the above figures are very small when compared with those of England, which contains 2,579 cotton factories, 50 million spindles, and 636,000 power looms.

Oil seeds.

The export of oil seeds had risen steadily till 1878–9, when it fell off through the crop being a failure.

Jute.

The quantity of raw jute exported has averaged during the last five years 5¼ million cwts., and its variations depend chiefly on the crop. The export of jute goods (bags and cloth for sacks) has increased rapidly, having nearly quintupled itself in the last five years. There are 21 jute mills in India, most of them in the suburbs of Calcutta.

Tea and coffee.

The quantity of tea exported has risen in the last five years from 21 to 34½ million pounds, and the value from two to over three millions sterling. About 200,000 acres are now planted with tea, and 250,000 acres with coffee. The export of coffee has not increased much in quantity in the last 10 years; for though it has varied from 33 to 56 million pounds, the average of the last five years has been 36 million pounds, and that of the preceding five years was 41 million pounds. The price, however, has steadily risen from 3 as. 7 pie to 6 as. 5 pie per lb., and the value of the exported article is now 1½ millions sterling.

Hides.

Of hides, raw or tanned, some eight millions are exported every year, valued at about three millions sterling. The trade received an impulse in 1877–8, in which year about 1½ million hides above the usual number were exported, an increase probably due to the deaths of cattle in consequence of the drought of 1876. The decrease in 1878–9 cannot therefore be regretted.

Indigo.

The manufacture of the indigo sent to Europe is for the most part in the hands of Europeans, that made by natives being of poorer quality and retained for local consumption. The trade has continued with little augmentation for 40 years, and the quantity exported averages 104,000 cwt., valued at nearly 30*l.* a cwt.

Wool.

Wool is exported to the extent of about 24 million pounds (at about 10*d.* per pound), and is largely used on the Continent of Europe for cheap woollen garments. The coarse woollen manufactures of India are all produced by hand-looms.

Sugar.

The sugar export has never quite reached a million sterling in value, and is very variable, depending on the season. The average quantity during the last five years has been 620,000 cwt., (probably about a fiftieth part of the quantity produced), and the average value about 8 rs. per cwt. It is mostly of inferior quality, used chiefly for brewing in England. The superior quality of the sugar imported into India is shown by the fact that, though less by 100,000 cwt. in quantity, its value is greater by 300,000*l.* The opening thus afforded for an improved system of treating the home produce has already been noticed.

Tobacco.

From 10 to 20 million pounds of raw tobacco (probably not 2 per cent. on the whole quantity produced) are exported annually, while a considerable quantity of the manufactured article is imported. This also is an industry which, if skill and capital are embarked in it, may yet be prosecuted successfully in India.

Expansion of export and import trade.

9. It is worthy of notice how soon the export trade recovered from the great drop in the value of cotton after 1866, and how, notwithstanding the loss of nearly 30 millions sterling under this head alone, the growth in other staples has already made this good, so that in 1879–80 the total exports are almost identical in value with those of the very exceptional year 1865, while the value of the imports of merchandise has increased by 13 millions. Not less remarkable is it that the two recent years of drought have not diminished in any great degree either the exporting or importing power of the country, and that the general depression of trade which has affected all other parts of the world for some years past is hardly apparent in the Indian trade returns.

Proportion of raw produce and manufactured goods exported.

10. Out of a total recorded export of 58¾ millions in 1878-9, only 6½ per cent. represent the value of what can properly be called manufactured goods, 93½ per cent. being raw produce, or such articles as indigo, oil, opium, silk, sugar, tea, and leaf tobacco, to fit which for the market some manipulation is required, though not of a nature to justify their being classed as manufactures.

Coasting trade.

11. Besides the foreign trade there is a large and active coasting trade between the different ports of India, the value of which (though the figures are admittedly incomplete) is shown in the following table. The figures for 1877–8 were abnormally high on account of the immense exports of food grains to the Bombay and Madras Presi-

dencies by reason of the famine, and for this cause the figures for this year are s separate from the average of the four preceding years.

Province.	Period.	Coasting Trade.				Total Coasting Trade.
		Value of Imports from all Indian Ports.		Value of Exports from all Indian Ports.		
		Merchandise.	Treasure.	Merchandise.	Treasure.	
		£	£	£	£	£
Bengal	1873–7	2,383,000	629,000	6,687,000	5,298,000	14,997,000
	1877–8	2,787,000	966,000	13,071,000	2,663,000	19,487,000
Bombay	1873–7	3,356,000	21,000	3,317,000	444,000	7,138,000
	1877–8	8,427,000	483,000	8,616,000	379,000	17,905,000
Sindh	1873–7	1,500,000	40,000	960,000	7,000	2,507,000
	1877–8	1,753,000	383,000	1,295,000	2,000	3,433,000
Madras	1873–7	5,027,000	686,000	3,895,000	502,000	10,110,000
	1877–8	12,566,000	639,000	4,563,000	898,000	18,666,000
Burmah	1873–7	2,424,000	1,340,000	2,011,000	458,000	6,233,000
	1877–8	2,688,000	2,622,000	2,426,000	580,000	8,316,000
Total	1873–7	14,690,000	2,716,000	16,870,000	6,709,000	40,985,000
	1877–8	28,221,000	5,093,000	29,971,000	4,522,000	67,807,000

Particulars of the articles carried by the coasting trade.

12. The principal articles carried by this trade (taking only those which in any year have touched the value of a million sterling) are as follows:—

Articles.	Value of Imports in	
	Average of Four Years, 1873–7.	1877–8.
	£	£
Cotton: Raw	790,000	1,578,000
Twist and Yarn	788,000	1,271,000
Piece Goods	1,895,000	2,287,000
Grain: Paddy	460,000	1,738,000
Rice	2,190,000	8,288,000
Other Sorts	568,000	2,399,000
Jute Manufactures	715,000	755,000
Metals	512,000	627,000
Spices	629,000	950,000
Sugar	435,000	691,000

Its distribution between different provinces.

13. The following particulars, showing the nature of the trade from one part of India to another in the year 1877–78, will be of some interest. The raw cotton was chiefly carried from minor ports in the Bombay Presidency to Bombay itself, and from Bombay to Bengal; the cotton twist, yarn, and piece goods from Bombay to the Bengal and Madras ports. Of the paddy and rice, nearly one-quarter went to Bombay and more than three-quarters to Madras; about one-eighth came from Burmah and three-fourths from Bengal. The other sorts of grain (gram, wheat, pulse, &c.) mostly went from Bengal to Madras. The jute manufactures were chiefly sent from Bengal to Bombay and Burmah, and the same provinces were the chief consumers of spices. Bengal was the chief producer of betel nuts; Madras, of cardamoms, ginger, and pepper. The greater portion of the sugar is sent by Bengal to Bombay.

Section IX.

Communications.

Classes of roads.

1. Considering that before British rule began not a single road existed worthy of the name, the present condition of the communications is not unsatisfactory. Under the Native Governments that preceded us nothing more was done than to plant trees along each side of the track used as a road, and occasionally to throw up earth on it when it passed through a depression: what bridges existed were made at the private expense of local magnates or governors desirous of leaving a name behind them. Now good roads traverse the country in all directions, and have opened up its more remote parts. They are of three classes: the first-class roads are raised, bridged, and

metalled with stone in the neighbourhood of the Himalayas and in Southern India, with kankar or nodular limestone in most parts of the Gangetic plain, and with laterite or red gravel in Central Provinces and Bombay; the second-class roads are raised and occasionally bridged, but not metalled; the third-class roads are fair-weather tracks across the country, which are sufficient for light traffic in the eight months of dry weather, cart traffic on them being to a great extent suspended in the monsoon months. Wherever important roads of the first and second classes cross large rivers which it is impossible, on the score of expense, to bridge, ferries are provided for the transit of passengers and traffic.

Carriage and rates of freight.

2. The ordinary carriage of the country consists of carts drawn by bullocks, and generally by two bullocks, and carrying 7 or 8 hundredweight, but where there is a considerable traffic over a long stretch of first-class roads it is not uncommon to see two or even four pair of bullocks yoked to carts capable of carrying nearly a ton. In Madras and Mysore the carts are of superior construction, with light strong wheels of an English pattern; in Upper India they are more clumsy vehicles, with thick heavy wheels, and often with wooden axles strengthened with iron; in Central India it is still common to see little low carts with solid discs of wood, tired with iron, for the wheels. The ordinary rate of freight by cart, when the roads are good and traffic abundant, is from 2 to 2½ annas per ton per mile, and it is sometimes as low as 1½ annas: in hilly and out-of-the-way tracts the rate often runs up to 4 and 5 annas per ton. Some attempts have been made to obtain statistics of the number of carts, but they are very untrustworthy. Almost every cultivator of any wealth keeps a cart, in which he yokes his plough bullocks and brings home the produce of his field; few villages of 30 or 40 houses but will contain 10 or 12 carts. The number ordinarily plying for hire is much smaller; but whenever a demand arises an immense number of these agricultural carts will turn out on to the road, especially in the season when field work is scanty. As an instance of the extent of the supply may be quoted the fact that on a single road in the Central Provinces, that from Nagpur to Bhandara, 36,000 carts have paid toll in a single week.

Pack-bullocks and camels.

3. In the less civilised and more remote parts of the country pack-bullocks still ply for hire; they are commonest in Central India, the Central Provinces, the Hyderabad country, and the Western Ghâts of Bombay and Mysore; but their number is small now compared to what it was when almost the whole internal traffic of the country was carried in this way, and no army took the field without a swarm of these "Brinjara bullocks" to carry its commissariat. In the Punjab, especially the south and west portion of the province, where the soil is sandy and the climate dry, camels are extensively used for pack carriage, and the same is still more distinctively the case in the western states of Rajputana and Sindh.

Railways.

4. The extent to which communication is provided by railways may be gathered from the map which accompanies the Report, and the mileage of the guaranteed and State railways at the end of 1878 is also shown as follows:—

GUARANTEED RAILWAYS.

	Miles.
East Indian	1,508
Great Indian Peninsula	1,268
Sindh, Punjab, and Delhi	663
Madras	857
Bombay and Baroda	444
Oudh and Rohilkhund	547
South Indian	611
Eastern Bengal	172
Total	6,070

STATE RAILWAYS.

Indus Valley	501
Rajputana	429
Northern Bengal	219
Punjab Northern	103
Dhond-Manmar	145
Holkar-Neemuch	172
Rangoon and Irrawaddy Valley	161
Others	304
Total	2,034

NATIVE STATES RAILWAYS.

	Miles.
Nizam and Berar - - - - - -	133
Baroda - - - - - - -	·31
Total - - - - -	164
Grand total - - -	8,268

Besides these, a considerable number of lines are in progress, and others have been projected and approved, but are awaiting the time when money can be provided to carry them out. The steady increase that has taken place in the traffic borne by the railways is well known, and does not need illustration here; the fact that several of them now pay more than the guaranteed interest, and that the financial result to the Government on their account has changed from a loss of 2,215,000*l.* in 1872–73 to a gain of 675,000*l.* in 1877–78, in which year the gross receipts were more than 12 millions sterling, is of itself sufficient testimony to their growing value. The equalising effect they produce on prices is also illustrated in the papers appended to the Report; and in districts through which a railway runs the great variations in price that prevail in more remote parts can rarely occur.

Navigation. 5. In the matter of water communication nature has done much for the country, and the skill of the engineer has not been wanting. In the Punjab three of its great rivers are largely used for navigation—the Chenab, Sutlej, and especially the Indus; in the North-Western Provinces the Ganges below Cawnpur and the Gogra are great water-ways of commerce; and Bengal, which is more deficient in roads than any other province, is abundantly supplied with rivers, and is, especially in the eastern and central parts, penetrated by a net-work of streams. Some traffic comes down the Mahanadi from the Central Provinces to Orissa, but in other respects that province and Bombay, in the absence of navigable rivers, are almost entirely devoid of water communication. In Madras there is some navigation on the Godaveri, the deltaic canals are largely used by boats, and through communication from the Godaveri to Madras has recently been opened by the Buckingham Canal; and on the west coast also much traffic passes along the back-waters. There is a large coasting trade along both the eastern and western coasts of Madras, which however possess not a single good harbour, but about 20 ports with more or less open roadsteads. The ordinary rates of freight by water on the rivers of the Punjab and North-Western Provinces are from 4 to 8 pie per ton per mile, according as the course is down or up stream; in Bengal they average 3 pie per ton; but to this has to be added a heavy insurance rate of about 1½ per cent. on the goods conveyed, which raises the freight by about a fourth. Owing to the dangers of river traffic from storms and other damage and from fraud, it is reckoned that 90 per cent. of the traffic sent by water is insured. The railway rates of freight, on the other hand, are from 5 to 6 pie per ton per mile, and on food-grain for long distances they are 4½ pie, so that they are absolutely lower in many cases than the freight by water, besides the advantages the railways possess in security and in rapidity of carriage. On the Ganges Canal the mileage rate is about 2½ pie per ton (the State toll being ·4 pie), but even this does not attract merchandise to any large extent, no doubt from the necessary additional cost of agency and cartage to and from the canal. On the Orissa and Midnapur canals the rate of freight is from 10 to 13 pie per ton per mile, which is an almost prohibitive rate, and would probably be lowered if any competition existed. On the Madras canals the Government tolls are ⅔ pie per ton per mile, and the total cost of freight is about 5 pie.

Telegraphs. 6. Telegraph communication has been very generally extended to almost all important towns of India, and there is no place devoid of it to which it would pay to open a line of telegraph. There are still many head-quarters of districts which are not so connected, but most of them are within a few hours' post of a telegraph station.

Chapter II.—Proposals for Administrative Changes.

Section I.

General Administration.

1. Among the matters specially noticed by the Government of India* as germane to this part of our inquiry is the possible existence of peculiarities of administrative system in particular provinces, which may have tended to aid or retard the action of Government in dealing with famine. We are not of opinion that any fundamental changes are required to meet the exigencies of famine relief, but on such points as appear to us to call for notice, we shall concisely state our opinions. We recognize the fact that the present form of the administration in all parts of India is the result of the long and gradual growth and development of a system which has been moulded to the ancient institutions of the country; and are satisfied, speaking broadly, that any modifications designed better to meet the case of famines should be framed so as to suit the form of the local civil administration which is found best adapted to ordinary times. We have already stated our opinion that all direct measures of famine relief must necessarily be carried out through the ordinary civil district officers, supplemented by such special aid as the temporary urgency of each case may demand; and, beyond this, we are confident that any such modifications of system as are best suited to the requirements of the country in ordinary times are also those which, as far as they go, will most conduce to efficiency in times of distress. Administrative improvements how far needed to aid famine relief.

2. The pressure which arises during severe famine no doubt strains to the utmost the whole official machine, and draws attention to weakness where it exists, both in the system and in the individual officers. On the personal question all that need be said is that in proportion as a high standard of capacity and public spirit is maintained, more particularly in the highest posts, the prospect of success will be improved; and that the only certain way of avoiding the risk of administrative failure, with consequent discredit to the Government and probable calamity to the people in time of difficulty, is to adopt proved capacity as the sole qualification for official advancement On matters of system we shall proceed to make a few suggestions. Proved capacity necessary for high office.

3. Among the changes which have been made in the Indian administrative system during the last quarter of a century may be specified that of the abolition of most of the Boards which before existed. The only important body of this description which now survives is the Revenue Board of Madras, the corresponding Boards in Bengal and the North-Western Provinces being such in name rather than in substance, the two members of which they are composed dividing the work between them, and rarely acting as consultative bodies. The Government of India has formed the opinion that the Madras Board should be broken up, and replaced by Revenue Commissioners such as exist in all the other provinces of India, and the question is still under consideration. The majority of the Commission is of opinion that such a change would be in many ways beneficial, and particularly would add to the activity and completeness of local supervision which is so important for successful administration, more especially in time of famine, and they trust that it may be carried out as soon as practicable; but in the actual circumstances of the case it appears unnecessary to go at any length into the other arguments which may be adduced in support of this conclusion. Substitution of Commissioners for the Board of Revenue in Madras.

4. The efficiency of the administration in the Madras Presidency suffers also from the large area of some of its districts, which are more than double the size of the districts in other provinces. In four of these districts the population exceeds 2 millions, and in seven the area exceeds 8,000 square miles. The subject has been under the consideration of the Governments of India and Madras, and some preliminary steps have been taken in the direction of breaking the largest of these up into districts of more manageable size. We are informed, however, that though such a measure has been for some time approved both by the Governments of India and Madras, as well as by the Secretary of State, it has not yet been carried out. We trust that further delay may not be permitted, but that what is requisite will speedily be done, since it is impossible to doubt the urgent necessity for the change. Reduction of size of districts in Madras.

5. We have thought it desirable to examine whether there is any considerable inequality in the proportion borne by the number of officers in the various provinces to the work that has to be done, as indicated by the area, population, and revenue; and Relative strength and cost of the administra-

* Resolution, 16th May 1878, para. 3.

tive staff in different provinces.

whether there is apparent reason for thinking that a readjustment is desirable to secure economy or efficiency. The figures which we have brought together in the accompanying tables do not justify such a view. Looking first at the strength of the administrative staff, the area and the population supervised by each revenue official are, taken together, larger in Madras than in any other province, though the Central Provinces officers have a larger area, and the Bengal officers a larger population to look after. But in Madras nearly a fourth of the area and population are comprised in the large zemindari estates, with the revenue administration of which no interference in detail is practised, and both in Madras and Bombay considerable areas of Native States are included, exercising almost complete independence in their internal affairs, which renders any exact comparison among the different provinces difficult or impossible. The ratio of area to the number of officers in the Punjab and Bengal is greater than in the North-Western Provinces and Oudh, because the Punjab includes a great uncultivated tract, and Bengal, besides being under a permanent settlement of the revenue, contains a large area of thinly peopled and hilly country. The population of Bengal again, being more peaceful and submissive than that of the Punjab, requires fewer officers to govern it. The proportion of revenue collected by each officer does not differ greatly in the larger and more advanced provinces, though it is somewhat greatest in Madras and Bombay. In the less advanced and more thinly peopled provinces the number of officers is generally less in proportion to area, and greater in proportion both to population and revenue. Looking next to the cost of administration we find that its ratio to the area administered varies, as might have been expected, in proportion to the productive power of that area, being lowest in poor wild tracts, such as the Central Provinces and Assam, and highest in the North-Western Provinces and Bengal. In these last provinces again the cost of administration is lowest in relation to the number of the population. In this respect Bombay is much the dearest, though the inclusion of the minor Native States would bring its ratio nearer to an equality with Madras. The ratio of cost of administration to revenue varies from 19 per cent. in the North-Western Provinces and Oudh to 32 per cent. in the Central Provinces, and stands as high as 30 per cent. in Bombay. Of the ryotwari provinces, Bombay is somewhat more expensively governed than Madras; and, among zemindari provinces, the Punjab than the North-Western Provinces or Bengal. But the needful cost and strength of the administrative staff so much depends on the character and condition of the population that statistical comparisons such as these indicate only a small part of the considerations which have to be borne in mind; and all that can be said by us is that so far as they go they do not present any such striking inequalities as to suggest the probable practical utility of pushing such inquiries further.

I.—Table showing the Strength and Cost of Administration in each Province as contrasted with the Area, Population, and Revenue.

—	Area in Square Miles.	Population.	Land Revenue, Excise, and Stamps, 1877-78.	Number of Collectors and Assistant Collectors.	Number of Square Miles to each Officer.	Number of Population to each Officer.	Number of £ of Revenue to each Officer.	Total Cost of Administration.	Ratio of Cost of Administration		
									Per Sq. Mile.	Per 100 Population.	Per £100 of Revenue.
1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.
	No. of Districts.		£				£	£	£ s.	£ s.	£ s.
Punjab	32	105,000	17,600,000	129	800	137,000	18,400	694,000	6 12	3 19	29 6
North-Western Provinces.	35	81,700	30,800,000	145	560	213,000	32,100	1,200,000	11 7	2 17	19 13
Oudh	12	24,000	11,200,000	47	510	236,000	31,000				
Bengal	44	156,200	60,500,000	168	930	360,000	32,500	1,629,000	10 8	2 14	29 16
Central Provinces	19	84,000	8,200,000	48	1,750	170,000	17,700	273,000	3 5	3 6	31 19
Berar	6	17,700	2,230,000	25	700	90,000	31,400	—	—	—	—
Bombay	19	77,500	14,050,000	92	840	150,000	37,000	1,197,000	9 15	7 6	30 15
Sindh	3	46,600	2,320,000	17	1,740	136,000	27,000				
Madras	21	138,800	31,670,000	117	1,190	270,000	38,000	1,142,000	8 4	3 12	25 13
Assam	11	45,300	4,200,000	32	1,410	130,000	18,000	172,000	3 16	4 2	29 11

Column 2 and 3, Statistical Abstract, 1877-8, p. 6. For North-Western Provinces, p. 11. For Bombay and Sindh, p. 15.
Column 4, Do. do. pp. 25, 27, 31. For Bombay and Sindh, Administration Report, 1877-8. Appendix, p. cxciii., &c.
Column 5, India list of 1880. The figures show total number of collectors, assistant collectors, deputy commissioners, and assistant commissioners and all officers of covenanted grades (civil, military, or uncovenanted) above deputy collectors or extra assistants.
Column 9, India Finance and Revenue Accounts, 1877-78, pp. 6, 7. For details see separate table.

II.—Details of the Cost of Administration in different Provinces.

—	Punjab.	North-Western Provinces and Oudh.	Bengal.	Assam.	Central Provinces.	Bombay.	Madras.
	£	£	£	£	£	£	£
1. Land revenue -	162,000	347,000	261,000	72,000	65,000	296,000	341,000
2. Administration -	116,000	144,000	155,000	18,000	42,000	149,000	116,000
3. Law and justice -	321,000	561,000	876,000	62,000	113,000	582,000	524,000
4. Education - -	67,000	106,000	253,000	16,000	40,000	131,000	93,000
5. Minor departments -	28,000	42,000	84,000	4,000	13,000	39,000	68,000
Total - -	694,000	1,200,000	1,629,000	172,000	273,000	1,197,000	1,142,000

Item 1. *See* p. 15 of India Finance and Revenue Accounts, 1877–78. The charges of the Settlement Department, and the allowances to village officers and to proprietors are omitted, as being either not permanent charges, or not properly included in cost of administration.

Item 2 contains the pay of the highest executive officials, such as governors or lieutenant-governors, their staff and council, secretaries, and commissioners, and some other items shown under this head in pp. 75–6 of the Accounts, but omits the charges for Paper Currency Office, and allowances to Banks of Bengal, Bombay, and Madras, which are not properly charges against the administration of those provinces.

Item 5. This head includes excise, assessed taxes, provincial rates, and stamps, as well as those classed as minor departments in p. 77 of the Accounts, 1877–8.

Promotion, Supersession, and Compulsory Retirement.

Present system of promotion by seniority.

6. We find that, allowing for slight variations in the different provinces, the general practice with respect to promotion in the Civil Departments of the public service is that officers rise by seniority till they reach the post of collector or deputy commissioner of a district on the revenue side, or of judge if they belong to the judicial branch. But with regard to the posts higher in rank, such as that of commissioner of a division, judge of the High Court, or secretary to Government, the practice is different, and though seniority has its full weight, these posts are filled up by selection among the seniors, and no one is appointed to them who is not considered to have shown proof of more than usual ability. We are of opinion that the principle of selection should be more completely adopted also in the appointment of the chief district administrative officers and judges. These posts involve in the one case executive authority over a large tract of country and a large number of departments; in the other case, supervision and control over many subordinate courts to which is entrusted the decision of suits which involve the interests of all branches of society.

Necessity for selection in appointment of collector or judge.

Supersession of incapable officers.

7. With a view to giving effect to this opinion we suggest that some such rules as the following might be adopted. When in the order of seniority officers become eligible for appointment to the post of collector or judge, there should be no hesitation about passing over those persons who have not given distinct evidence that they are fit for such office. An officer who has been passed over during a period of three years, or on more than two or three occasions, should be considered no longer eligible for promotion. But the head of the local Government should be bound to record his reasons for such supersession in writing, and an appeal should lie from such an order to the Supreme Government. When any officer has thus been finally declared ineligible for future promotion, it should be in the power of the Government to require his retirement on a suitable pension.

Enforced retirement.

8. When an officer has reached the post of collector or district judge it should be in the power of the local Government, if it is not satisfied with the manner in which he discharges the functions of his office, to record a resolution to the effect that he is considered ineligible for the post of commissioner or High Court judge, and if that resolution is not withdrawn, and is upheld on appeal by the Supreme Government, it should be in the power of Government to compel him to retire from the service, on the lapse of five years from his first appointment to the office he holds, on a full or proportionate pension.

Graduated pensions.

9. Under the present rules officers, both in the covenanted and uncovenanted civil service, obtain their full pensions after having served a fixed number of years, and receive a very much smaller sum if they leave the service without completing that number of years. This system would entail serious hardship if officers were compelled to retire before they are entitled to their full pension, and such hardship must be removed if the measure is to work effectually. We recommend, therefore, that

the present pension rules should be altered, and that officers in both branches of the civil service should receive pensions graduated for each year of their service. This could be easily arranged without throwing any extra charge on the State, and without being unfair to the officers themselves.

Functions of Collectors and Subdivisional Officers.

Collectors.

10. We consider that the collector of a district should retain in his hands the supervision of every branch of civil executive business, and that the subdivision of work which is necessary as the administration becomes more complicated should not be allowed to withdraw from him that general control which invests him in the eyes of the people with the position of the local head of the civil government. His time should not be occupied with the details of magisterial, police, revenue, fiscal, or any other business to a degree which will debar him from watching the effect produced on the people by the operations of all the departments of Government. The collector, therefore, while controlling all the magisterial and revenue work, and occasionally performing parts of it in person, should administer details chiefly through his assistants, who would thus be trained under his eye in every branch of executive business, and would each in a smaller area obtain that intimate knowledge of the people and their interests which is essential for efficient administration.

Subdivisional officers.

11. It should not only be permitted, as now, but should be enjoined upon the collector, wherever this practice does not already prevail, to give to every properly qualified assistant and deputy collector the charge of the revenue administration of one or more of the subdivisions of his district, and the assistant or deputy thus placed in charge should be authorised in such subdivisions to perform, so far as the law permits, all the duties and exercise all the powers of the collector of a district, reporting only in certain cases to the collector for his sanction and orders. The assistant magistrate and collector ought not to have his time so occupied in petty duties as to be debarred from exercising proper supervision over all parts of his subdivision, nor should he be burdened with a disproportionate amount of magisterial work; but the chief share in carrying out all such details should be allotted, as may be most convenient, to the native officials of the subdivision according to their capacity, the assistant collector exercising appellate powers if he has shown himself sufficiently qualified. These remarks should be held to have especial application to the junior English officers, who should not be kept in the discharge of duties of mere routine longer than is necessary to give them a complete knowledge of all details of business. We have no doubt that the right education for assistant collectors is to entrust them with independent charge of all the public business of a small area, subject to the collector's guidance and control, and that this system is best calculated to secure honest and thorough administration by the subdivisional and village officials.

Tours of Inspection.

Defects in the system.

12. Considering the vital importance of the district officers being kept constantly and fully informed by personal observation or inquiry as to the actual condition of the portion of the country entrusted to them, we are satisfied that the duty of carrying out tours of inspection calls for greater attention. In some provinces the rules which determine the length of time that officers should be on tour, and the reports they render of their proceedings while thus engaged, are far from what they should be. In some instances we found that no officer had been on tour at a time when several weeks of the short cold weather had expired; in others the amount of touring required from subordinate officials was left mainly to be decided by individual collectors or commissioners; and in some cases it was stated that the funds available for the payment of marching expenses were insufficient, and that this entailed pecuniary loss on everyone who was sent into the district. Without desiring to judge of the relative merits of the systems adopted in the different provinces, we may refer to the practice in the Bombay Presidency as affording an example that may well be followed in respect of this important duty. There the collector is bound to spend at least four months in travelling, and to visit every taluka of the district and every mamlatdar's office annually. The assistant collectors are required to spend seven months of every year under canvas, and to occupy at least 15 days at each mamlatdar's office in a thorough inspection of his office work and records.

Recommendations.

13. We think that definite rules on this subject should be laid down by all the local Governments, somewhat to the following effect: In each province the period should be

defined, according to the prevailing climate in the different parts of that province, during which the collector and his assistants are bound to be under canvas. The duties to be performed by each class of official while on tour should be generally defined by the Government for the whole province, and more particularly by each commissioner for his division, such as the visitation of municipalities, dispensaries, and schools, the inspection of the tahsil or taluk head-quarters, and the close examination of the office, and its records and working; and especial attention should be given to the duty of visiting each village in turn, and testing the village papers and agricultural statistics on the spot. Each officer on tour should keep a diary, which should be forwarded at intervals to head-quarters, and would thus afford an useful test of diligence and intelligence, and convey to the collector or the commissioner impressions formed by personal inspection of the tract in which the officer was encamped. A fixed monthly allowance should be made to each officer to meet the cost of providing the camp equipage required for his private use, as well as the expenses of his tours; and it should either take the form of a monthly payment all the year round, as in Bombay, or of a daily payment for the number of days spent on tour, as in Upper India; but the allotment made in the latter case should not be so limited that if any officer remains longer in tents than usual under proper authority, he or some other officer would have to go without the allowance.

The Subordinate Native Service.

Want of system in employment of Native subordinate service.

14. We think that the attention of the Government should be given to the improvement of the subordinate Native agency employed in the numerous public departments of various descriptions, and that such improvement will be best secured by the adoption of better defined rules for the appointment and promotion of these classes of officials. We are aware that some steps have already been taken in some provinces in this direction, and we quite recognize the necessity for dealing with the matter with due regard to the special position of each locality. But we are satisfied that there is no part of India in which the progress of education has not reached a point at which the adoption of some educational tests are possible, and their application so far cannot be too strongly advocated.

Recommendations as to system of appointment

15. The general principles which we think should be followed are as follows:—

Primâ facie, no one should be admitted to the subordinate Native service who has not a certificate of having passed an examination to be held annually by the officers of the Government Education Department in the subjects taught in the Government school course. The nature of the examination should be regulated according to the character of the office to be filled. The names of those who, being accepted as physically, morally, and socially qualified, pass the examination test should be arranged in a local or departmental list in order of merit; and the collector or other officer in whose hands the appointment to any vacancy may lie should be allowed to select from this list, and only in case of there being no passed candidates should others be accepted. With regard to the complaints which we have received regarding the lowness of the pay of the subordinate revenue officials in Madras and elsewhere, we trust that the creation of an Agricultural Department, followed by the appointment of supervisors of village accounts, recommended by us in para. 123 of the first part of our Report, will provide a sufficient remedy.

and of promotion

16. The selection having been thus made, and the first appointment given, the subsequent promotion up to a certain rank should be, as now, conditional on passing departmental tests of efficiency, but should otherwise rest with the head of the office, he being guided partly by seniority and partly by personal selection. Up to what grade promotion should be given in this manner we will not attempt to decide, as it may probably differ in different parts of the country, but we hold that for the ordinary Revenue department the line should be so drawn as to exclude the principal native officers known as tahsildars or mamlatdars. With regard to these officers, and possibly to a grade below them in rank, different rules should be applied.

Tahsildars should be officers of a higher description.

17. All authorities agree that upon the integrity, zeal, and ability of the tahsildar very greatly depend the satisfactory administration of the tahsil, the proper carrying out of the details of government, the protection of the people from hardship and oppression, the detection of abuses, and the general well-being of the community. Such an official cannot be too carefully selected. It is important that he should have enjoyed a higher education than an official in the lower grades of the subordinate service usually has, and, if possible, he should be a member of a family or class

held in consideration in the country. The rules for his appointment should be framed so as to include these conditions.

Rule recently passed in Bombay.

18. A regulation has recently been drawn up in Bombay under which anyone who has passed the examination for the B.A. degree may enter his name as a candidate for a mamlatdar's appointment. He is then posted as second "karkun," or clerk, to a taluk, and learns his work there for a year, after which he is entitled to be promoted on the first vacancy to be head "karkun." After serving in this capacity for six months, passing a higher departmental examination, and obtaining a certificate of good conduct and capacity, he is entitled to a mamlatdar's appointment when a vacancy occurs. Promotion by seniority from the ranks of the subordinate Native service does not extend to the grade of second "karkun."

Proposed rule.

19. The system thus laid down has only just been introduced, and is still in the experimental stage; but we think that with some modifications it might be applied to all provinces with advantage. Candidates thus selected might be appointed to such a post under a tahsildar as, while not too important to be filled by a person without official experience, should yet not be of so low a grade as to be unsuitable to the attainments and position of the aspirant to office: and a preference among candidates for various grades of office should be given to those who give proof of higher educational qualifications by passing appropriate examinations. The provisions under which it is necessary for a tahsildar to have taken the B.A. degree would, however, be unsuitable in some provinces, and some other educational test might be substituted for that degree. In other departments also the superior offices might be filled up by the means of tests suitable to the duties and responsibilities that attach to the several posts to which appointments have to be made.

Section II.—*Registration of Vital Statistics.*

System of registration.

1. In order to explain what improvements we can suggest in the manner of registering and utilizing vital statistics, it is necessary to state briefly what the present system is under which these statistics are collected. There is no legislative enactment making it compulsory on any person to report domestic occurrences (except in the case of certain tribes, chiefly Rajput, among which female infanticide prevails), and the duty is imposed by an executive order on some village official (generally either the policeman or the accountant), part of whose salary can be deducted by way of fine if he is remiss in carrying out the duty. The system in the North-Western Provinces (which agrees in its main outlines with that of other provinces) is that the district is divided into circles, the centre of which is a police station, and at these centres the village officer reports either daily or at fixed intervals; a clerk keeps up registers of these reports, and sends in the tabulated figures to the Civil Surgeon, as the health officer of the district, who in turn submits the abstracted totals month by month to the Sanitary Commissioner of the province or presidency. In most provinces the Sanitary Commissioner publishes the collected figures for each month in the Government Gazette, and in all he reports annually on the total results for the year. In towns where no village officers exist, the duty of reporting deaths and births is generally imposed on the town servants (such as the sweepers) of each street or quarter, and in most municipalities a byelaw (having the force of law) has been passed compelling the head of every family to report such occurrences. It follows that registration in municipal towns is always more accurate than it is for rural districts.

Statistical details recorded.

2. The facts reported at the head-quarters of the circle are, in the case of deaths, the name of the village, the name, sex, religion, and age (where known) of the deceased, and the alleged cause of death. In the case of births, the names of the village and of the parents, and the sex of the infant, are generally reported. The clerk who makes up the monthly abstracts shows in his statements the number of deaths reported, and classifies them according to age, sex, religion, and cause, but it is not his business to draw attention to the name of the village in which any abnormal mortality has occurred. Similarly, the health-officer in tabulating the results for the whole district, has not been in the habit, generally, of drawing attention to the death-rate of any particular circle. In order to check these returns, or derive practical information from them, it is necessary first to find out the precise locality in which the mortality reported is excessive or deficient, which at present can only be done by going back to the original register of the circle clerk, and by collecting the scattered reports

belonging to each village, and then to compare the results with the census population of that village, to see what the ratio of mortality or birth is. The tables prepared by the health-officer for his district, and the Sanitary Commissioner for his province, show the total number of deaths and their reported causes, and minor local variations are not as a rule brought to notice. The age is for the most part a rough guess, and the diagnosis of the cause is in the last degree inaccurate. Even well-known diseases run a risk of being entered under wrong heads, and, in obscure or complicated cases, the general resource is to ascribe them to fever.

Use hitherto made of the vital statistics.

3. The system of registration, though gradually improving, is still very incomplete, and it is obvious from the figures that a large portion of the deaths and births that actually occur is not reported. The consequence of this is that till lately attention has mainly been directed to the necessity of returning a higher ratio as more in accordance with the truth. Year after year the various Governments, in reviewing these statistics, have censured those districts in which the recorded ratios were lowest. The management of those in which they were highest has been praised as most efficient. District officers in their tours have examined the returns and made local inquiries as to their correctness, and praise or punishment has been awarded to the village officials according to the results of those inquiries. As, however, no famine or severe scarcity had taken place in any province in which the system of registration had been generally established, and as little reliance was placed on the records, from their acknowledged imperfection, the possible value of these reports in indicating early the pressure of want had hardly been suggested to the officers who had to deal with them. The statistics, though known to be imperfect, had, indeed, been used as a means of testing the condition of the people and the progress of epidemic disease, on the hypothesis of their deficiencies being constant, it being assumed that in whatever degree they were incorrect in one year, they would contain approximately the same degree of error in another. But nowhere, before 1877, since the time when such returns were introduced, had the reported deaths been so numerous that any marked increase suggested that these statistics would afford a means of ascertaining the effect of want on the people.

Their importance in indicating the pressur of famine.

4. Recent events have, however, shown that, imperfect and inaccurate as the registration undoubtedly has been, it supplies the administration with most valuable indications as to localities in which severe distress arises. The recorded death-rate has generally been highest where the distress is otherwise known to have been worst, and in many places where it was not thought to be severe the height of the death ratio has opened the eyes of Government officers to the extent of the actual pressure. Thus, in the districts of Madras, which suffered most, the death-rate of 1877 ranged from 82 to 94 per mille, or about fourfold the usual amount. In the most affected district of Bombay, Kaladgi, it rose to 102 per mille, or four times the previous average. In Mysore the ordinary yearly rates were multiplied six or seven times. In the worst districts of the Punjab and North-West Provinces they were trebled. The details are given more fully in a separate paper, which may be referred to, and they show how, in most cases, the death-rate clearly indicated the locality of severest pressure from want and from the diseases that accompany and follow upon want. The greatly reduced number of recorded births in distressed districts has also proved (as Dr. Cornish was the first to bring forward prominently) what had been suspected before though it had never been put definitely in evidence, that one of the effects of a famine is very greatly to affect the fecundity of the population. The number of births registered in the worst districts of Madras and Bombay was less than half the usual number.

Measures recommended for increasing their utility in this respect.

5. Among the first results of the increased knowledge thus obtained of the usefulness of vital statistics, if properly applied, should certainly be the improvement of the system under which the monthly returns are prepared, so that they may be rendered actively efficient from the moment they are received, instead of being so dealt with that they can only be made use of after the lapse of some months, when the information they supply has become obsolete, and useless for immediate practical purposes. The propriety of making the registration of births and deaths legally obligatory in villages as well as towns should be considered by the Government in each province, and if thought practicable it should be carried out. The regular monthly publication of the main vital statistics of each province should be universally enforced. The village officer who reports such events should, if possible, be able to write, so that his recollection may be supported by a record made at the time the event occurred. In order that the circle clerk may be able to point out whenever the mortality in any village rises, or the birth-

rate sinks considerably below the average, he should be supplied with the census population of each village, and with numbers showing respectively what, in the Sanitary Commissioner's opinion, would be the average number of monthly deaths and births in such a population, and what excess or deficiency should be made the subject of special report. The clerk should report the total numbers as heretofore for the whole of his circle, but would add to it a list showing the villages in which there was any such excess of deaths or deficiency of births as came within the prescribed margin. This test would at once draw the attention of the district health officer to the prevalence of excessive mortality, from whatever cause, in that locality. It should be his business to call the attention of the Collector or other chief district officer, as well as the Sanitary Commissioner, to any serious indications presented by these reports, and in all cases the Collector of the district should see the monthly vital statistics at once, and should not, as is often the case now, see them only when, after the lapse of some time, they are published in the Government Gazette. The Sanitary Commissioner should also consider it his special duty to warn his Government of any unusual rise in the death-rate, in order that the cause of such a rate may be inquired into. The Collector should be responsible that especial vigilance is exercised in the early stages of distress, when it may be still uncertain whether an actual famine will supervene or not; the condition of the people then requires to be most carefully watched, and the reports of births and deaths should be scrutinized and tested on the spot by officials deputed for this purpose to see that no omissions occur, and also that, through excess of zeal, imaginary deaths are not registered. In time of famine the returns might be submitted at shorter intervals than once a month, and should be sent with the least possible delay to the Collector and the relief officers in charge of the different parts of a famine-stricken district. As to the reputed causes of death, little improvement can be hoped for till medical knowledge is more widely spread.

Mortality from preventible diseases.

6. In the first part of our Report we dwelt on the fact that the population of India is to a large extent liable to the chronic action of destructive agencies of a more or less preventible character, against which society at present has neither the means nor the knowledge necessary to defend itself, and that in times of scarcity the effects of insufficient food, which might otherwise be successfully resisted, co-operate fatally with these influences, and result in most lamentable mortality. It follows that one, and perhaps the most effectual, mode of checking mortality in times of famine is to remove those chronic causes of sickness and death, which on the advent of famine ally themselves with it, with such deadly effect, in its task of destruction. Appalling as it may seem that 5 millions of people should die in two years of famine, it is no less appalling that the normal death-rate of the entire Empire should be, as seems probable, much higher than it need be; and that causes, which it lies within the range of possibility to a large extent to remove, should sweep off millions of lives, even in years when the public health and prosperity are in their normal condition. The average annual death-rate in British India is believed to be about 35 per mille, and if this could be reduced to 25, the number of deaths would be 5 instead of 7 millions a year. In several of the cities we find an annual death-rate of over 100 per mille, and occasional outbursts of mortality, which, if continued for many months, would soon extinguish the entire population. The Indian village is subject to one class of unhealthy influences, which sufficiently accounts for the chronic low condition which makes the inhabitants ready victims of famine or epidemic disease. The inadequate and impure water-supply of a year of drought is only an exaggeration of the deficiency and impurity which are at all times the characteristics of too many cities and villages. Wells, even where deriving their supplies from uncontaminated sources, are often liable to many forms of pollution; and the ordinary tank, in which personal ablutions, washing of clothes and utensils, and watering of cattle are alike conducted, becomes in time of drought a source of pestilence.

Progress and prospects of improved sanitation.

7. There is no room to doubt that the work hitherto achieved by district officers or the Sanitary Department falls very far short indeed of what is necessary to secure satisfactory improvement, or what the administration could effect if the matter were taken up seriously, and funds were available. The difficulties in the way of effectual action, however, even where the course is clear, are very great, partly on the score of expense, and partly from the risk of interfering with prejudices which would frequently stand in the way of improvement. Progress in such matters is unfortunately but too difficult and slow even in the far more advanced societies of Europe, and much caution will be requisite in dealing with them in India. But it is right that we

should express our conviction that every real step in advance made in this matter will have a most important effect on the health and the lives of millions and on their power of resistance in time of famine. The whole subject, however, is still surrounded with so many doubts and difficulties that we will only add our hope that it may continue to receive the attention of the responsible officers of the several Governments.

Chapter III.—Relations of the Government to the Landholders, and of Landlord and Tenant.

Section I.—*Tenures.—Relations of Government to Landholders.*

Custom of India in respect of rights in land.

1. The expression "ownership of land," when used with reference to India, must be understood in a sense differing in some important respects from that in which it is commonly applied in England. In India the immemorial and unquestioned custom of the country is that the landholders do not own the land, in the sense in which ownership is understood in England, but merely certain limited rights in it. Originally the occupant of the land possessed the right to hold and till it subject to the payment of a part of the produce to Government; and the Government possessed the correlative right to a share of the produce of the land, known as the land revenue. This simple system still mainly prevails in Southern India, *i.e.*, in the Bombay and Madras Presidencies, and in Berar, Hyderabad, and the Native States of the Southern Peninsula, and under it the tenure of an occupant of the land is known as ryotwar. In Upper India the historical fact of the territorial superimposition of a conquering over a conquered race, and other causes, have made these rights more complex by the introduction of a class of superior holders between Government and the actual occupant; and this distinction has been made more definite by the action of the British Government. The right of the occupant has thus been divided into two parts, and he is represented by two classes; first, the cultivators, who till the land and pay rent in the form either of money or of a share of the produce; second, the landlords (or, as they are commonly called in Northern India, proprietors), who receive the rent in cash or kind, and pay a portion of it as land revenue to the Government; these classes again constantly run into each other, the proprietor in numerous cases tilling his own land or a part of it, or sometimes, while he retains the superior right in one plot of land, holding the cultivator's right in another plot. This form of tenure, which is called zemindari, prevails over the whole of Upper India, *i.e.*, the Punjab, North-Western Provinces and Oudh, Bengal, and the Central Provinces.

Varieties of proprietary right in Northern India.

2. The lapse of time, the anarchy of past centuries, and the competition for land among a dense population have introduced many interesting and curious variations into the mutual relations of landlord and tenant. In the Punjab and the North-Western Provinces the great mass of the land is held by small proprietors, who cultivate their own land wholly or in part. They are generally associated together in village communities, and represented by an elected or hereditary head, and are jointly responsible for the payment of the Government revenue due from the entire village. Sometimes all the land is held in common, and the proceeds are thrown together and divided among the sharers by village custom. Sometimes the proprietors all have their separate holdings in the estate, each paying the quota of revenue due from his plot and enjoying the surplus profits of it. Sometimes a single person (who is generally either the head of a clan, or the descendant of an intruding official of the Native Government) holds the proprietary right in a tract containing many villages. Some parts of the North-Western Provinces and the greater part of Oudh are held by proprietors of this description, who are there called talukdars. The great mass of the land in Bengal is held by the descendants of large zemindars, whose position was recognised at the permanent settlement in 1789–93, but in Behar there are a certain number of cultivating proprietary communities. The zemindars were, for the most part, powerful officials or chiefs exercising more or less distinctly a proprietary sway over large tracts of country, of which they were constituted owners by the British Government. Some of these estates have been broken up by purchase, and in many the superior right has been merged by subordinate leases in permanent sub-tenures; and these sub-tenures have again been leased and sub-leased, in some cases as many as four times over, and even more. Where this is not the case the zemindars mostly lease out their villages for a short term of years. Two of the largest of these zemindars—the Rajas of Darbhanga and Bardwán—have incomes of 21 and 40 lakhs of rupees respectively. No details of area can be given, or of the number of different classes of proprietors, but about 130,000 estates are borne on the provincial rent-roll. In the Central Provinces the proprietary right in each village is owned for the most part by one person or one family, the representatives generally of the person who founded it, and who kept the cultivators together by his influence and support during the troublous times that preceded the British Government. The number of proprietary families, or heads of estates, is about 28,000.

TABLE showing the NUMBER of LANDHOLDERS in the PUNJAB, NORTH-WEST PROVINCES, and OUDH.

	PUNJAB.		N. W. P.	OUDH.
	Number of Landholders.	Per cent. of Total Area.	Per cent. of Total Area.	Per cent. of Total Area.
Large zemindars - -	1,695	5	3	59
Village communities -	33,020	91	90	36
Others - - -	1,711	4	7	3

N.B.—For the N.W.P. and Oudh the number of landholders cannot as yet be accurately given.

Tenures in Madras and Bombay.

3. In the greater part of Southern India (*i.e.*, in Madras, Mysore, Bombay, Berar, and Hyderabad) the tenure in what are technically called Government lands (that is, lands not alienated in favour of some person holding free of revenue or at a light quitrent) is ryotwari. The word *ryot* is in general use in India to designate a cultivator or occupant; but while in Southern India the term is more particularly applied to an occupant who holds direct from Government, it is confined in Northern India to the cultivator who holds a subordinate tenure under a proprietor. It is important to bear this distinction in mind, as misconception has arisen from confounding the independent landholder of the south, such as the Bombay or Madras ryot, with the tenant of the north, often holding his land at a rack-rent and with no permanent interest in the land, who also passes under the same name. The tenure of the Government ryot of Southern India is as secure and simple as can well be conceived. He holds his land in proprietary right, subject to the payment of the assessed revenue which is fixed for a period of thirty years. He has the option of resigning his entire holding, or any individual field, at the end of the agricultural year. His improvements cannot be made a ground for increasing his assessment at the time of the periodical settlement. He can sell, mortgage, or let his land to anyone without requiring the consent of Government, and at his death the land descends to his children according to the rules of inheritance. A large portion of Madras, about a quarter of the whole territory, is not held by ryots, but by great zemindars, whose position corresponds to that of the zemindars of Bengal, and who pay a very moderate quitrent, fixed in permanence, to Government, and their property generally descends by a special custom of primogeniture. In Bombay there is a considerable amount of land held by classes who correspond to the proprietors in Upper India, having cultivating tenants under them, who are called talukdars in Ahmedabad, khotes in Ratnagiri; there are also some joint village proprietary communities in Kaira and Broach. About a third of the total area of the presidency is held in quitrent by grantees.

The following table shows what information has been collected as to the number of holdings in Government lands in Madras and Bombay, and their areas or the assessments paid by them, but these two sets of figures, not being prepared on identical systems, are not strictly comparable with each other. No statistics as to the numbers and classes of ryots can be supplied for Berar.

MADRAS.			BOMBAY.	
Class of Ryots.	Number.	Average Assessment.	Class of Ryots.	Number.
		Rs.		
Paying over Rs. 1,000 - -	401	1,557	Holding over 1,000 acres - -	233
„ „ 500 to Rs. 1,000	1,399	676	„ 500 to 1,000 acres	530
„ „ 250 „ 500	5,288	332	„ 200 „ 500 „	4,872
„ „ 100 „ 250	31,737	142	„ 100 „ 200 „	23,242
„ „ 50 „ 100	79,085	68	„ 50 „ 100 „	86,906
„ „ 30 „ 50	121,553	37	„ 20 „ 50 „	266,398
„ „ 10 „ 30	455,716	17	„ 10 „ 20 „	249,096
Paying under Rs. 10 - -	1,251,750	4	„ 5 „ 10 „	232,329
Joint tenancies - - -	445,135	17	Holding under 5 acres - -	505,071
Total - -	2,392,064	16	Total - -	1,367,622

N.B.—The larger areas in the Bombay returns are not purely ryotwari holdings, but those of talukdars, khotes, inamdars, &c., who are shown as single occupants, and are not distinguished in these returns from ryots.

Influence of tenures on readiness to make improvements.

4. The Secretary of State (in para. 17 of his despatch of January 1878) inquires whether the "practical effect of the tenure which is most largely prevalent in the "Madras Presidency is to disincline the tenant from expending his labour or his "money on the excavation of wells." All the information that we have received tends to show that in lands where the occupants hold of Government under the ryotwari tenure no such disinclination arises from the cause alleged, but in zemindari estates, where the occupants have not the protection of this tenure, they are represented as being unwilling to sink their money in these investments. Where such unwillingness exists under the ryotwari tenure, it may spring from want of capital, from indifference or want of enterprise, or from doubt as to the profits to be earned by the investment. We have made some suggestions for removing this last cause of unwillingness, so far as it may be due to the liability of enhanced assessment, but beyond this we do not see that anything can be done to add to the security and fixity of the ryotwari tenure, and to the encouragement it offers to the improvement of land by the ryots.

On general prosperity.

5. Turning to the more general question of the effect of the different tenures held directly under the Government, we find no clear evidence that the tenure of the landholders, whether it be ryotwari or zemindari, has any direct connection with their power of supporting themselves in times of famine, or that in order to increase that power it is desirable to revise or reform the tenures. We have already (in Part I. of the Report) stated our opinion that the people most liable to be affected by famines are the landless classes, and the evils to which they are exposed cannot be directly affected by the nature of the tenure. As regards the landholding classes, we are unable to find any evidence that the special characteristics of either of the two chief tenures—the ryotwari or the zemindari—are such as to give one of them a decided advantage over the other, nor have we been able to ascertain that any relative inferiority in the condition of the landholders in any part of the country is due to the prevalence of the one tenure rather than the other. What is really essential is security of tenure, and neither tenure has in this respect any marked superiority over the other; under both the landholder may secure all that is necessary in respect of fixity of holding and of land revenue payment over considerable periods of time, and he is thus enabled to feel perfect security in respect of his position, and to rely on being repaid for any judicious outlay he may incur on improvements.

On the rate of the land revenue.

6. Neither does it appear that the incidence of the land revenue on the gross produce of the land is to any important extent affected by the tenure on which the land is held. At first sight it might appear probable that the land revenue would be lighter in Northern than in Southern India, seeing that where a landlord exists there are two parties to share the net profits of agriculture with the Government, and that it is the principle in the provinces where the zemindari tenure prevails to take as land revenue not more than half the average rent or its equivalent, while in provinces where the ryotwari tenure prevails the assessment is fixed with reference to the net produce of the land, which is necessarily more than the rent would be. But an examination of the figures will show that, although the differences in the rate of incidence in different provinces are considerable, whether the calculation is based on the cultivated area or the estimated value of the gross produce, those differences have no connection with the prevalent form of tenure, and the inequality can be traced to other causes.

Province.	Population.	Cultivated Area.		Value of Gross Produce at 5*l.* per Ton for Food, and 3*l.* per Acre for Non-food Crops.	Land Revenue.	Per-centage of Land Revenue upon value of Produce.	Average Incidence of Land Revenue per Cultivated Acre.	Average Incidence of Land Revenue per Head.
		Food Crop.	Non-food.					
		*Acres.	*Acres.	*£	*£		Decimals of £1.	Decimals of £1.
Punjab - -	17,600,000	18,500	2,500	34,150	1,910	5·6	·09	·11
North-Western Provinces and Oudh -	41,000,000	31,450	5,200	71,750	5,565	7·9	·16	·14
Bengal - - -	60,000,000	48,000	6,000	103,500	4,050	3·9	·08	·07
Central Provinces -	8,200,000	12,000	2,500	21,250	600	3·8	·04	·07
Berar - -	2,250,000	3,700	2,800	11,500	525	4·6	·08	·23
Bombay -	16,000,000	21,500	5,500	39,000	2,970	7·6	·11	·19
Madras -	31,000,000	26,000	2,500	50,000	3,160	6·3	·11	·10

* Three 0's omitted.

According to this estimate of the value of the gross produce of the soil, the land revenue bears to it, in different provinces, a proportion ranging from 4 to 8 per cent., being lowest in the Central Provinces and highest in the North-Western Provinces and Oudh, in both of which the zemindari tenure prevails. Similarly the incidence of the land revenue per cultivated acre is lowest in the Central Provinces, and highest in the North-Western Provinces and Oudh; the next highest rate being found in Bombay and Madras, where the tenures are ryotwari. The high rate paid per head by Berar and Bombay is due to the relatively thin population, which, so long as there are enough agriculturists to till the ground, is an advantage rather than the reverse. On the whole, inquiry shows that the burden of the assessment depends mainly on historical and economical conditions, on the sums paid in previous times, on the competition for land and the density of the population, and on the fertility of the soil, and its protection by artificial irrigation or by climate from calamities of season; and whether the tenure of those who pay the assessment is zemindari or ryotwari has very little to do with the proportion of the produce received by the Government.

Permanent settlement and redemption of land revenue.

7. Though we fully recognise the great importance of the questions that have from time to time been raised as to the permanent settlement of the land revenue and the grant of a power of redeeming it, these are matters which appear to us to be excluded from the prescribed scope of our inquiry, and we here refer to the subject only to point out that this is the cause of our silence.

Relation of Landlord and Tenant in Northern India.

Relations of landlord and tenant.

8. We next have to consider the relations that exist between the landowners and the tenants who hold under them, the character and extent of the rights possessed by these subordinate holders, and the causes which have in some instances conduced to the diminution or obliteration of those rights. The relation of the landlord and tenant constitutes a historical and economical problem which has ever since the commencement of the British administration been in one part of the country or another the subject of prolonged consideration and keen controversy, and it is obvious that a topic of so much intricacy, and involving so many minute and technical details, cannot be treated in this Report with all the fullness it deserves. We must therefore content ourselves with an attempt to touch only on its principal characteristics, and to suggest in a general way the measures which we recommend for the improvement of the legal position of the tenants. We shall first give a brief sketch of the origin and rise of these tenures, then an account of the condition in which they now exist, and lastly make such proposals as seem likely to result in the improvement of that condition.

Importance of a sound law of tenure to the well-being of India.

9. The character of the tenure, as affecting the rights and general position of the occupants of the soil, is of more vital importance in India than in countries where there are other fields of employment for the masses of the population, to which, if unable to earn a fair subsistence as tenants, they can turn for the means of livelihood and the opportunities of acquiring wealth. In India the rural population is, for the present, at any rate, bound to the soil and precluded by the general conditions of its existence from seeking in other forms of employment an escape from any hardships and oppressions to which it may be exposed by the existing system of tenure. A consideration of this fact, of the vast numbers of the persons concerned, and, what is of equal importance, of the general recognition of a limited right in the land as inherent in large classes of tenants, renders it impossible for the State, as the guardian of the common interests of the community, to leave the mutual relations of the payers and receivers of rent to adjust themselves by competition and the ordinary rules which govern commercial contracts.

Origin of tenant-right in India.

10. It has always been an accepted principle in India that the occupant of the soil is entitled to remain there from generation to generation, provided he pays the portion of the produce which may be demanded of him by Government or by some superior holder or landlord, and this proportion has generally been fixed by local custom. But the tenant was often in a position to enlarge this right, and place it on a firmer basis. As a rule, the superior holders, unless they carried their tenants with them, and had their support in war as well as in cultivation, could not make head against the officers of the Native Governments, who practically exacted the maximum amount that could be paid; and hence the tenants had to be conciliated by privileges, such as low rents and fixity of tenure. In the less populous tracts again the same result was produced by the fear of the tenant absconding and by the impossibility of replacing him.

Rights of this kind, when once acquired, were naturally conserved and strengthened by the general feeling that whatever is old ought to remain unaltered. The Native Governments also threw their weight into the same scale, by reason of their knowledge that the payment and growth of the revenue depended on the contentment and prosperity of those who cultivated the soil; and hence it was commonly made a condition of the tenure of the superior holder that he should not only pay the Government revenue, but also should foster the spread of cultivation and keep the ryots contented.

View of tenant-right in Bengal held at the beginning of British administration.

11. When the early British rulers began to look into the question they were universally impressed with the belief that the rights of the tenants were co-ordinate with those of the landlord, and equal to his in point of permanence. The authors of the Permanent Settlement in Bengal considered the position of the tenant no less entitled to protection and security than that of the landlord, and undoubtedly intended to place the one on as assured a footing as the other. Their object, it was observed at the time, was to "secure to the great body of the ryots "the same equity and certainty as to the amount of their rents, and the same "undisturbed enjoyment of the fruits of their industry," as was conferred by that measure on the zemindars. When sanctioning Lord Cornwallis' scheme, the Court of Directors wrote, "Our interposition, where necessary, seems also to be clearly con- "sistent with the practice of the Mogul Government, under which it appeared to be "a general maxim that the immediate cultivator of the soil should not be dispossessed "of the land he occupied. This necessarily supposes that there were some measures "and limits by which the rent could be defined, and that it was not left to the arbi- "trary determination of the zemindar, for otherwise such a rule would be nugatory." The same principle was on various occasions approved both by the Government of India and the Court of Directors, the Court on one occasion observing that "the faith of the "State is as solemnly pledged to uphold the cultivator of the soil in the unmolested "enjoyment of his long established rights as it is to maintain the zemindar in pos- "session of his estate, or to abstain from increasing the public revenue permanently "assessed upon him." There is indeed good reason to suppose that for many years after the establishment of the Permanent Settlement, the relation of the so-called landowners who paid the revenue, to the occupiers who paid the rent, was regarded rather as that of a superior to an inferior contributory to the same impost than as that of landlord to tenant in the ordinary acceptation of the terms. In their letter of the 15th January 1819, the Court of Directors observe "that conse- "quences the most injurious to the rights and interests of individuals have arisen "from describing those with whom the Permanent Settlement was concluded as *the* "*actual proprietors of the land.*" "This mistake," they continue, and the habit which grew out of it of describing the payments of the ryots as "rent" instead of "revenue," "have introduced confusion into the whole system of tenures," "have "given a specious colour to the pretensions of the zemindars in acting as if they were, "in the ordinary sense of word, proprietors of the land, and as if the ryots had no "permanent interest but what they derived from them." Another important limitation of the proprietary rights of the original grantees under the Permanent Settlement was that the Government not only declared it to be the duty of the zemindars "to conduct themselves with good faith and moderation towards their dependent "talukdars and ryots," and to enjoin similar conduct on their agents, but reserved to itself the right of any further legislation that might be considered necessary for the protection of these classes. The same regulation which created the rights of the zemindars contained the proviso that "it being the duty of the ruling power to "protect all classes of people, more particularly those who from their situations are "most helpless, the Governor-General in Council will, whenever he may deem it "proper, enact such regulations as he may think necessary for the protection and "welfare of the dependent talukdars, ryots, and other cultivators of the soil." It was added that no zemindar should be entitled to make any objection to his assessment on this account.

Court of Directors, 19th September 1792.

Court of Directors, 15th January 1819.

Regulation I. of 1793, Article 7.

Tenant-right in Upper India.

12. The rights thus asserted in the case of the Bengal ryot existed, there is reason to believe, in a more or less complete form in every part of India. "There is a very general consent," writes Sir W. Muir,* speaking of a judgment of the Calcutta High Court, in which the whole subject had been minutely considered by the entire Bench, "that in the Native state of things the resident ryot, simply as such, is throughout the "continent of India possessed, as a rule, of a right of hereditary occupancy at the "customary rates of the vicinity." But such a right was liable to become obscured

* Statement of Objects and Reasons with Draft of Bill for amending Act X. of 1859, circulated in 1865.

under a system in which the landholders were recognised as possessing virtual proprietorship in the lands for which they paid revenue, and the intentions of the Government to provide for its adequate maintenance were for a long period not carried into execution. With the lapse of time it became more and more difficult to ascertain what were the precise rights of tenants, and what were the customary rates of rent. It is true that regulations were passed directing that the rights of the ryots should be protected and preserved, and this was most emphatically inculcated in those Regulations and Acts which prescribed the procedure in making a settlement of the land revenue in the North-Western Provinces, but no legislative enactment distinctly formulated the nature of these rights, or the mode of testing their existence, or of recording them. While the theory was that all existing rights should receive equal attention, and while the benefit likely to accrue to the cultivators was avowedly one of the principal objects of the settlements made for long periods, there grew up a generally exaggerated estimate of the proprietary rights of the landlords, and a corresponding depreciation of the tenant's position. English ideas of proprietorship were allowed to obscure the important limitations to which, in India, proprietorship was subject, and a tendency arose for the landlord to become an absolute owner and the cultivator a rack-rented tenant at a competition rent.

Legislation to define the rights of the tenant.

13. The most important legislative attempt to stop this tendency and to declare what were the different classes of tenants, what rights they respectively possessed, and on what basis the claims to such rights should be adjudicated, was made by passing Act X. of 1859, which for many years was the sole embodiment of the law of landlord and tenant for all the provinces included in the Bengal Presidency. This law still continues to be in force in Bengal and the Central Provinces with certain amendments, and in both its further revision is now under consideration. It has been superseded by later enactments in Oudh and the North-Western Provinces. The main principle established by this law was that undisturbed occupancy during a period of 12 years should be the condition for acquiring immunity from arbitrary ejectment, or enhancement of rent. Thus the cultivators became divided into two broad classes, the privileged and the unprivileged. The former, or the occupancy-tenant, can only be ousted by decree of Court in consequence of non-payment of rent; and his rent cannot be enhanced except by a decree of Court on certain specified grounds, of which the principal one is that he is paying at a lower rate than is usual among other tenants of the same class as himself for land of equal value. The unprivileged class, or tenant-at-will, on the other hand, is liable to be ousted at the pleasure of the landlord at the close of any agricultural year, and his rent can be enhanced to any sum which the landlord chooses to demand. If, however, he or his ancestors have continued in uninterrupted occupation of the same land for the space of 12 years he acquires by that lapse of time a right of occupancy in his holding, and ceases to be a tenant-at-will. The rights thus laid down have been to some extent further developed by subsequent legislation, as we shall proceed to show, but in its main outlines this description of the two chief classes of tenants still holds good.

Tenant-right in the Punjab;

14. In the Punjab, at the time of the first settlement of the land, the ideas which subsequently found expression in Act X. of 1859 were prevalent, and all tenants of any standing were declared to be entitled to occupancy rights. This declaration was afterwards contested when a more elaborate record of titles was in progress; and large numbers of tenants who had thus been recorded as possessed of these rights were held not to be entitled to them. Ultimately, after prolonged discussion, it was provided by Act XXVIII. of 1868 that all tenants whose past history or circumstances at that time indicated a privileged position, or who had been recorded in any preceding settlement as entitled to occupancy rights, should be so treated in future, but no provision was made for the future accrual of such rights by reason of the efflux of time during the occupation of land as a tenant-at-will. When once an occupancy tenant's rent has been enhanced by the decree of a Rent Court, a second suit cannot be brought for five years unless the land revenue has been raised meanwhile in the course of a settlement. The number of tenants of this class is 540,000, and they cultivate an average area of 6½ acres. The tenants-at-will are about 1,100,000 in number, with an average area of 5·9 acres apiece.

in the North-Western Provinces;

15. In the North-Western Provinces in the earliest regular settlements (made under the provisions of Regulation VII. of 1822 and Act IX. of 1833) rent-rolls were drawn up in which all tenants residing and cultivating land in the village were recorded as in permanent occupation of their holdings, and their rents were fixed by the settlement officer on the understanding that they were not to be enhanced during

the term of settlement. By the passing of Act X. of 1859 provision was made for the first time for the separation of the two classes of tenants according as they had or had not cultivated their lands continuously for the space of 12 years, and for the enhancement of the rents of occupancy-tenants on certain specified grounds by a decree of the Rent Court, a further stipulation being made that in the permanently settled districts those who were proved or presumed to have been in occupation at the time of the Permanent Settlement should not be liable to any enhancement of rent. In 1873 an amended Rent Act was passed, which prescribed stricter rules for the decision of enhancement suits, and created a new class of "privileged" tenants, viz., those who had been proprietary cultivators, but had lost their proprietary rights by sale or otherwise, though still remaining on the land as cultivators. The number of tenants at fixed rates in the permanently settled districts has not yet been recorded. The occupancy-tenants hold 41 per cent. and the tenants-at-will 31 per cent. of the cultivated land, the balance being tilled by the proprietors themselves. It is estimated that the former class number about 1,500,000 and the latter about 1,200,000, the average area cultivated by each tenant being 4·8 and 4 acres respectively.

16. In Oudh, where the great landowners (or talukdars) were more powerful and masterful in former times, it has been decided that occupancy rights were altogether unknown at the time of annexation, and the bulk of the cultivators hold as tenants-at-will. Occupancy rights have, however, been conceded as a compromise to those who were formerly proprietors, and had not been altogether deprived of their rights by the talukdars. There are in Oudh nearly two million tenants, holding 3·1 acres apiece on an average.

In Bengal;

17. In Bengal the broad classification into privileged and unprivileged tenants still exists, with the same proviso that has already been described regarding the fixed rates at which certain tenants are entitled to sit. As, however, there has been no field survey, and no record has been made of village rights, it is impossible to state either the number or the average area of the holdings of each class of tenants. The total number of tenants is, however, about 10 millions, and the following table, which classifies them by the amount of rent they pay, shows how small that area must be, since a 5-rupee rent implies a holding of between 2 and 3 acres on an average.

Bengal.	Number of Tenants.
Tenants paying over Rs. 100	25,241
Ditto 50 to 100	119,617
Ditto 20 to 50	682,353
Ditto 5 to 20	2,789,409
Ditto under 5	6,136,264
Total	9,752,884

In the Central Provinces.

18. In the Central Provinces the unprivileged tenants-at-will are in the same position as in Bengal and the North-Western Provinces. The privileged or occupancy-tenants are divided into two classes: absolute occupancy-tenants, whose rents are fixed by the settlement officer for the term of the settlement, and who can mortgage their holdings, and, subject to the landlord's right of pre-emption, transfer them; and conditional occupancy-tenants, who are not entitled, in the absence of special local custom, to mortgage or sell, and whose rights in other respects are those laid down by Act X. of 1859. There is also a class of old and well-established tenants who possess a right almost equivalent to proprietary right, but confined to the plot of land they cultivate; their numbers are about 15,000. Regarding the other classes of occupants the following information is on record:—

	No.	Average Holding in Acres.
Absolute occupants	149,715	19½
Conditional occupants	121,807	15½
Tenants-at-will	469,031	14

The local authorities consider that the provisions of Act X. of 1859 had the effect of "placing the whole body of tenants in a less favourable position than they had

enjoyed" before the passing of the Act, and a Bill has been framed with a view to remedying the defects of the law in this and other particulars. This measure provides that, seeing that occupancy rights accrue to every tenant who has occupied the same land continuously for 12 years, the lands received by a tenant in exchange for his own, in parts where village lands are redistributed at certain specified periods shall be deemed to be the same as those he originally held; also that where a tenant with a right of occupancy gives up some lands and takes others under the same landlord he shall be deemed to have a right of occupancy in the lands he so accepts. The rents fixed at the time of settlement cannot be enhanced, except in special cases, during the currency of a settlement. Rights of occupancy are made, as a rule, hereditary, but not transferable by deed or will except to persons who are co-sharers in the holding, or who would be entitled to inherit at the death of the transferor. Protection against arbitrary ejectment is extended to any tenant who has cultivated land in the village for five years, is resident in the village, and has not within three years received assistance from his landlord in cultivation. Provision is made for compensation for tenant's improvements on ejectment, and for allowing a tenant who would be entitled to such compensation to transfer his holding, together with the claim for compensation, to another person.

Unsatisfactory results of legislation.

19. Although the intention of the legislation of recent years has clearly been to define and protect the rights of tenants, it is proved by the evidence before us that the effect produced has been very different from the object aimed at. From all quarters it is reported that the relations between the landlord and the tenants with occupancy rights are not in a satisfactory state, and are becoming yearly more and more hostile; so much so that a landlord will generally refuse any aid to his occupancy-tenants when they are in difficulties, and will do all that he can to ruin them and drive them off the land. The reason for this hostility is that an opposition of interests has been created between the two classes: the occupancy-tenant possesses a beneficial interest in the land, and intercepts a portion of the profits which the landlord would obtain if he were able to exact from him the full rent which he can obtain from a tenant-at-will. The landlord is naturally but little anxious to help a tenant who is in a position, or on the road to it, in which his rights will make him comparatively independent of his landlord, and the fact that such rights are in constant course of accrual frequently results in an equally constant series of efforts on the landlord's part to prevent such accrual taking place. When it has been effected, the landlord's object is to harass the tenant, and to diminish the value of his occupancy rights, by bringing suit after suit for enhancement of the rent. The probable result of such a struggle is in favour of the more powerful combatant, and there is reason to fear that in many parts of the country the occupancy rights have been irretrievably impaired, and the point to which the efforts of Government should be directed is, therefore, to remove this conflict of interests.

Special evils in Bengal and their causes.

20. Besides the general shortcomings of the law, and its failure to secure adequate protection for the rights of the tenant, there is in the Bengal Province a special class of evils, arising from the want of any system of maintaining a continuous detailed village record of the occupation of land, and from the fact that the administration has not been sufficiently ready to interpose its own direct authority to prevent illegal conduct on the part of landlords, but has confined its interference to cases where tenants have ventured to sue.

Urgent need of reforms in rent law.

21. The Commission have received a large amount of evidence, remarkable in its weight and unanimity, to the effect that in the Bengal Province the relations of landlord and tenant are in a specially unsatisfactory condition. We feel no doubt that the condition of the rent law and the way in which it is administered in Bengal are, as it was described to us by a high official of the province, a very grave hindrance to its agricultural prosperity, and that large portions of the agricultural population remain, mainly owing to this cause, in a state of poverty at all times dangerously near to actual destitution, and unable to resist the additional strain of famine. The urgent necessity for some reform in the law is thus dwelt on by the Lieutenant-Governor (in a letter dated 7th September 1878). "In Behar what is most "wanted is some ready means of enabling the ryot to resist illegal distraint, "illegal enhancement, and illegal cesses, and to prove and maintain his occupancy "rights. Apart from the backwardness and poverty of the ryot, there are many "points in the existing system of zemindari management in Behar which seem to "call for speedy amendment. The loose system of zemindari accounts, the entire "absence of leases and counterparts, the universal prevalence of illegal distraint, the

" oppression incident to the realization of rents in kind, the practice of amalgamating " holdings so as to destroy evidence of continuous holding, are evils which neces- " sarily prevent any possible development of agricultural prosperity among the tenant " class, and place them practically at the mercy of their landlords, or of the ' *Thika-* " *dars* ' (or lessees) to whom ordinarily their landlords from time to time transfer " their rights."

The Thikadari system and its evils.

22. The Thikadari system here alluded to is a custom under which the landlord lets his rights in his estate to a contractor for a short term of years, who proceeds to make the best of his bargain by extracting as much as possible from the tenants. Such an arrangement is obviously likely to read to evil results. Nothing could be further from the letter and spirit of the engagements entered into under the Permanent Settlement than that the landlord should throw off all responsibilities towards his tenants, and constitute himself a mere annuitant, leaving another person, having no permanent connection with the estate or the tenants on it, to wring the highest possible rental from them. There would at present be great difficulty in curtailing the landlord's power of alienating his interest in the land temporarily; but the existence of such a custom renders it more than ever important that the tenants' rights should be distinctly defined by the legislature, and carefully supported by the executive.

Present action of Bengal Government.

23. Legislative measures having for their aim the amendment of the rent law, and the correction of these abuses, are at present under the consideration of the Government of Bengal, and special inquiries are being made into all the circumstances with a view to framing a suitable enactment. Pending the result of these inquiries, and the decision of the Bengal Government, it would be out of place for us to offer any detailed recommendations on the subject with any special reference to this province.

General object to which new legislation should be directed.

24. We can, however, feel no doubt that in all the provinces of Northern India, and particularly in Bengal, it is the duty of the Government to make the provisions of the law more effectual for the protection of the cultivators' rights. This opinion is primarily based on the historical ground that they have a claim as a matter of strict justice to be replaced as far as possible in the position they have gradually lost; but it may also be supported on the economical ground that in the case of these large cultivating classes security of tenure must have its usual beneficial effect; and that as a rule the cultivators with occupancy rights are better off than the tenants-at-will. Wherever inquiry has been made it has been found that in all matters relating to material prosperity, such as the possession of more cattle, better houses, and better clothes, the superiority lies on the side of the occupancy-tenants, and the figures in the preceding paragraphs also show that as a rule they hold larger areas of land. Where the subdivision of land among tenants-at-will is extreme, and in a country where agriculture is almost the only possible employment for large classes of the people, the competition is so keen that rents can be forced up to a ruinous height, and men will crowd each other till the space left to each is barely sufficient to support a family; any security of tenure which defends a part of the population from that competition must necessarily be to them a source of material comfort and of peace of mind, such as can hardly be conceived by a community where a diversity of occupations exists, and where those who cannot find a living on the land are able to betake themselves to other employments.

The enlargement and strengthening of occupancy right.

25. It is only under such tenures as convey permanency of holding, protection from arbitrary enhancement of rent, and security for improvements, that we can expect to see property accumulated, credit grow up, and improvements effected in the system of cultivation. There could be no greater misfortune to the country than that the numbers of the occupancy class should decrease, and that such tenants should be merged in the crowd of rack-rented tenants-at-will, who, owning no permanent connection with the land, have no incentive to thrift or to improvement. It is desirable for all parties that measures should be framed to secure the consolidation of occupancy-rights, the enlargement of the numbers of those who hold under secure tenures, and the widening the limits of that security, together with the protection of the tenant-at-will in his just rights and the strengthening of his position by any measure that may seem wise and equitable. The suggestions which we now proceed to make for alterations in the existing law, or in the system of administering it, are based on this view, and have for their object the ends thus indicated.

Alterations in the law as to enhancement of rent.

26. The chief scope which our system affords for the exercise of the antagonistic feelings which, as stated in para. 19, exist between the two classes is in the Rent Courts, where the landlord can sue for enhancement of rent. These suits are extremely perplexing in their character, they involve a great deal of minute and laborious inquiry into the soils and the current rates of rent, and the decisions of the Courts have often been conflicting; such circumstances give encouragement to litigation, and leave a feeling of bitterness behind them when the suits are decided. It is to the interest of all parties and of the State that litigation of this kind should be discouraged as far as can fairly be done with due regard to the claims of either side. Under the present law a landlord who has sued a tenant for an enhancement of rent can sue him again after a period of 5 years in the Punjab, 10 years in the North-Western Provinces, one year in Bengal, and the same in the Central Provinces in respect of a "conditional" occupant; moreover, as the landlord can thus sue his tenants in detail in successive years, the sore is constantly kept open. We are of opinion that most of these evils could be avoided by reverting to the original principle under which the rent of privileged tenants could be altered only at the same time as the revenue, and had to be fixed periodically by the same officer who fixed the revenue; so that it should be the duty of the settlement officer to assess the rent, field by field, (following the practice in Southern India), and then to base his assessment of the revenue on a fixed proportion of the rent-roll. We recommend that this principle should be submitted for the favourable consideration of the Governments of the different provinces concerned. If they consider that it would not be unfair to the landlords, we are of opinion that it would be advantageous to the general well-being of the country, and should be extended to all classes of occupancy-tenants, however their rights may have been acquired. If the principle were adopted, the rule for Bengal should perhaps be that a revision of rents should not take place oftener than every 30 years, although no revision of the land revenue is to follow upon it.

Alteration in the presumption as to continuous occupation.

27. One of the most prevalent forms of oppression on the part of the landlords is their habit of breaking up the holdings of their tenants, and compelling them to change the fields they cultivate, with a view to the destruction of occupancy rights, or rendering them indistinct when they exist, and preventing their accrual in the case of tenants-at-will. This practice prevails even in some parts of the North-Western Provinces, where the village papers are not so kept up as to preserve an accurate record of the changes in occupation from year to year; it is peculiarly common in Bengal where no such records exist. To obviate this, the remedy proposed by the local authorities is the creation of a presumption in favour of all resident tenants that they have continously occupied the same lands, unless the contrary can be proved. It is, in our opinion, questionable whether the law ought not to go even further, and to declare that all tenants who have been resident and have cultivated land in the village for 12 years and upwards are entitled to occupancy right in their land, and to restrict the exceptions to this rule to cases in which the landlord can show that a tenancy on a different footing has been expressly created by act of the parties.

Limitation of the power of ejectment for arrears of rent.

28. We think further that the power which the law concedes to the proprietor to eject an occupancy-tenant for the non-payment of rent ought to be subject to limitation. Even though the beneficial interest of the tenant be not transferable by sale, it still is a property of considerable value, and it is not necessarily reasonable that the right should be confiscated as a penalty for an arrear of rent. The arrear may be due to a calamitous season, or to misfortunes over which the tenant has no control, and in such cases it is proper that the same lenient treatment should be shown by the proprietor to the tenant as, in our view, the proprietor ought to receive at the hands of Government. We have already recommended, in paragraph 168 of the first part of our Report, that relief should be given to tenants by the suspension of the demand for rent in times of general failure of the crops. When a tenant is sued for an arrear, the Rent Courts ought to have the power of deciding, in the first place, whether he is entitled by reason of some calamity of season, such as is recognised in the case of a landlord as a justification for a suspension of land revenue, to have the arrear suspended till the next crop is harvested; and next, if not so entitled, what the value of his beneficial interest in the land is, and such value should be deducted from the arrear due, or if it is greater than the arrear, the balance should be paid to the tenant by the proprietor before he is allowed to exercise the right of ejectment.

Occupancy tenant's right to transfer and to sublet.

29. Two important questions closely connected with the matters of which we are now treating are whether the occupancy-tenant should have the power of transferring his rights by sale or mortgage, and whether he should have the right of subletting.

The former of these two questions has been much discussed in the evidence taken by our Commission, and elsewhere, and very different conclusions have been arrived at, one party contending that the right is imperfect and incomplete unless it can be sold, the other fearing that if it becomes a marketable property the tenant will be tempted to borrow on the strength of it, and will so be led into debt, with the same evil results as have occurred in the case of the proprietors in some parts of the country. In the North-Western Provinces when the Rent Act was under revision, in 1873, the latter view prevailed, and these occupancy rights were then declared not transferable, and in the bill now under consideration for the Central Provinces it is proposed to make them transferable only to such persons as can inherit from the tenant. In Bengal, on the other hand, the majority of officers, headed by the Lieutenant-Governor, desire that the rights should be made transferable by sale, and see in this provision a measure which will tend greatly to strengthen the tenant's position. The question of subletting has not received equal attention, and though no direct stipulations regarding it exist, it seems to be tacitly permitted by all the Rent Acts now in force.

Right of transfer would depend on existing custom.

30. Though on the whole we regard the general concession of the power of sale of these rights to be expedient, and ultimately almost unavoidable, the immediate course to be followed by the Governments must no doubt be to a great extent governed by local custom. Where the custom has grown up, and the tenants are in the habit of selling or mortgaging their rights in land, it should certainly be recognized by the law; and where it has not, it may be questioned whether the law should move in advance of the feelings and wishes of the people.

Practice of subletting should be stopped.

31. But the question of subletting seems to us to be one of even greater importance. The more valuable the occupancy right becomes by reason of such measures of protection as we have advocated, the more need there will then be of guarding against a custom which is everywhere prevalent in India, under which the privileged tenant is apt to turn into a middleman, subletting the land and living on the difference between the rack-rent and the privileged rate secured to him by the law. The occupancy right can only be beneficial to the community when enjoyed by a bonâ fide cultivator; and the object of the law should be to prevent anyone who is not a bonâ fide cultivator from acquiring or retaining such rights. If this can be secured, the chief danger in the way of making such rights marketable will be removed, for they will not be able to pass into the hands of money-lenders; and if a tenant who becomes deeply involved is sold up, his land will pass to another tenant, presumably a more thrifty man, and the public interests will not suffer by such a substitution. We therefore recommend that concurrently with the extension of the right of transfer the practice of subletting by an occupancy-tenant should be discouraged, or even, if possible, forbidden. Care must no doubt be taken lest such a measure should work harshly. But if a tenant, for a long period, fails to keep up the stock required for cultivating his land, or otherwise ceases to be by occupation and habit a bonâ fide cultivator, the rights he or his ancestors acquired by cultivating the soil might reasonably pass from him to the person who, having become the actual cultivator, occupies his place. We conceive that it would not be difficult for the Rent Courts to investigate and decide the question of fact, whether a tenant with occupancy rights has or has not wilfully ceased to be a habitual cultivator in respect of the whole or any part of his holding; and when such lapse is established the occupancy right might be held to have passed to the person to whom the actual cultivation of the land has been transferred.

Scheme for enabling the tenant-at-will to purchase occupancy rights.

32. The tenants-at-will form a large and an increasing class, the growth of which in some parts of India cannot be looked on without serious apprehension. They are kept in a situation of absolute dependence on the landlord, which takes away the desire to improve the land or to raise their own position, or to lay by anything from the profits of agriculture. The soil, therefore, is not unlikely under such tenants to become year by year less productive, and the tenant, having neither credit nor stores to fall back upon, becomes a prey to the first approach of famine It is much to be desired that for tenants of this class some means should be provided by which they might, without injury to the landlords, secure occupancy right in the lands they hold. It seems not impossible that a plan might be adopted under which, with all reasonable attention to the interests of the landlord and with suitable limitations as to the cha[illegible] of the holdings to which the plan would apply, an estimate should be made, either in the form of a rate per acre occupied, or of a per-centage on the rent paid, which shall represent the annual amount which a landlord gains by his tenant not possessing occupancy rights; and that on the tenant-at-will making good, by instalments during a certain number of years, a sum equal to the capitalised value of that amount, in addition to his present rental, he should thereby

obtain the privilege and the advantages of security of tenure which attach to an occupancy-tenant. No useful end would be attained by our entering further into the details of such a scheme as this, but we think that the subject is of such importance as to call for the consideration of the Government. It would, we conceive, operate in the direction of restoring to the cultivating class the protection which they had under the ancient custom of the country against extreme pressure by rack-renting, but which they have, in a great measure, lost under our rule; and we hope that it or some similar plan may be found suitable for adoption, in order that those among the tenants at-will who are the best cultivators, and the most thrifty persons, may have an opportunity of raising themselves from their present precarious situation to the more secure position of an occupancy-tenant.

Tenant-at-will not to be evicted without notice.

33. There appears to be some difference in the law of different provinces as to whether a landlord can evict a non-occupancy-tenant without sending him a notice through the Rent Court. In our opinion no such power should be allowed; the non-occupancy-tenant should invariably have proper notice, served through a court or by some responsible officer, of the intention to eject, and such notice, following the practice recently adopted in England for yearly tenants, should be given at least six months before the end of the agricultural year.

Improvements required in Bengal: field records and village accounts;

34. In the case of Bengal, what is specially needed, in addition to the reforms suggested above, is the introduction of field registers and village accounts, together with more active administration. In order to effect the first of these two reforms it is necessary, as we have already urged, to carry out a field survey, and to restore or create the body of village accountants. The position and duties of these officers should be defined with as much distinctness as possible, and it should be made quite clear that, though paid by a rate on the land, they are public servants, amenable to the authority of Government. We cannot too strongly condemn the present system under which the patwari, as far as he exists at all, though nominally a public officer, is in reality nothing more than the zemindar's servant.

Registration of all subordinate rights;

35. We strongly recommend, as a further necessary step to all improvements in the tenant's status in this province, that the needful steps should be taken to decide and record what the status of every tenant is, and to fix the rent of occupancy-tenants, as already proposed, for a period of 30 years. The landlord should be by law obliged to give every tenant a written statement of all the particulars of his holding, and the statement thus drawn up should be verified by some competent official, who would see that the tenant's rights are duly and fully recorded therein. A rent-roll embracing these particulars should be compiled, and should be tested by the administrative officials by the means of a periodical inspection of villages, such as is common in Bombay and in other parts of India. The landlord should be bound to give a receipt, keeping a counterfoil, in every case of payment of rent.

Stricter supervision to prevent illegalities.

36. With regard to illegal distraint, illegal cesses, illegal enhancement, and the other violations of the law which appear to have frequently characterized the proceedings of the Bengal landlords, we think that on the one hand the provisions of the law should be much more stringent, and on the other that the administrative officials of the country should make it more definitely their business to prevent the occurrence of such abuses. Where, as in Behar, the relations of landlord and tenant are too often those of a high-handed proprietary body on the one hand, habitually disregarding the law, and on the other a tenantry ignorant, very helpless, and sunk in the most abject poverty, the onus of bringing complaints of oppression ought not to be laid on the tenants; and the first and imperative duty of the Bengal Government and the local officials would seem to be to guard zealously against infringements of the law by the rich, and to put them down as resolutely as if they were offences against the public peace.

Abuses connected with payment of rent in kind.

37. Another matter in which great abuses are said to prevail is in the working of the system of payment in kind. The following description of the oppression frequently practised is quoted from a report by a Behar official.* "The next engine of "oppression in the hands of the zemindar is not to make the appraisement of the "crops at all, but to let the grain rot in the thrashing-floor or in the field. When "the ryots decline to accept the zemindar's terms as to the share of the produce "the zemindar declines to make the appraisement. One year's loss of rent is "nothing to the zemindar, but to the ryot the loss of one year's crop means starva-"tion. Another mode of oppression is that after the appraisement or apportionment "of the crop the zemindars do not allow the tenant to take away the grain." Another illegal form of oppression is for the landlord to forbid the tenant to cut the crop till he agrees to the landlord's appraisement. The law having already

*Mr. Finucane.

declared such abuses to be illegal, it can be no difficult matter to devise a procedure which shall ensure that respect is paid to its provisions. One effectual remedy against such oppression would be that occupancy-tenants should be allowed to commute their grain rents into cash payments. We further recommend that the illegal exercise of distraint by a landlord should be treated as a criminal offence, and that a summary procedure for enforcing the penalties attached to it be provided.

Position of Tenants in Bombay.

Account of landed rights in Bombay.

38. In the Bombay Presidency there is no large class of superior holders which stands in the same relation to Government as the zemindars of Northern India and Madras. The bulk of the landholders are peasant farmers, technically called "occupants," paying land revenue direct to Government, and enjoying, subject to such payment, a heritable and transferable property in their holdings. Such being the general tenure established by the Land Revenue Settlements, and confirmed by legislation in the course of the past forty years, no conflict as to rights between superior and inferior holders has as yet risen into prominence. This conditional proprietary tenure has, however, a tendency to favour the growth under it of a class of sub-tenants, and such a class is now known to exist. There are also tenants under the holders of land technically called "alienated," that is, land the State-right to receive rent or revenue from which has been wholly or partially transferred to private persons. Lastly, there are in Guzerat and the Konkan two small classes of landlords whose land is cultivated by tenants. To give some protection to all such inferior holders, provisions regarding tenants' rights were introduced into the Bombay Revenue Code of 1879. The effect of these is, that in the absence of any agreement or custom to the contrary, old tenants, or those as to the commencement or intended duration of whose tenancy there is, by reason of antiquity, no satisfactory evidence, are secured in possession of their holdings as long as they pay the rent fixed by agreement or claimable by usage, or if there be no evidence of usage or agreement, the rent found just and reasonable by a Civil Court. But there is no provision for the accrual of occupancy right in virtue of possession as tenant for twelve years or any prescribed period. The other classes of tenants recognized by the law are tenants under agreement and tenants by annual tenancy, and the rent payable by them is determinable in the same way as that of the old tenants, but they have not the same prescriptive right of occupancy. The landlord may enhance the rent as he may be entitled by agreement, usage, or otherwise, and may evict for non-payment. These provisions are applicable generally to all persons holding land from a superior holder or landlord. The peculiar relations between the Konkan landholders, called khotes, and their tenants are the subject of a special Act.* The tenants of khotes are divided into privileged occupants and ordinary tenants, and the rights and rents of the former are so secured and defined as to place them in about the same position as occupants under Government. But occupancy right under a khote is limited to those tenants who had at the time of passing the Act actually occupied or cultivated the same land continuously from a time previous to the commencement of the revenue year 1845–6. The rent claimable by the khotes from their ordinary tenants is, however, in the absence of specific agreement, the same as that payable by occupancy-tenants in the same village, and this is fixed after inquiry into the custom of the village by the officer who makes the settlement.

Suggestions for the protection of rights of tenants in Bombay.

39. As the relations of landlords and tenants have been so recently under the consideration of the Bombay Council, and the new legislation on the subject has been but a few months in force, we do not think it necessary to suggest any further action upon it before experience has been obtained of the practical result of these measures. We observe, however, that the portion of the Revenue Code which provides for the survey of land by Government is not applicable to "alienated" villages (as before described) except on the written request of the holder of any such village. Now if an alienated village is brought under survey and settlement at the request of its owner, the tenants acquire the rights of occupants of land under Government, and it is therefore not probable that the owners will voluntarily seek to bring about this result. But until the same statistical papers are prepared for alienated as for Government villages, the agricultural statistics of the presidency can never be complete; and we therefore recommend that the Government should be empowered to survey all villages whether fully assessed to the land revenue or not, to require the

* Bombay Act, No. I. of 1879.

owners to maintain village accountants, and to prepare and furnish all village papers and statistical returns which are needed in the public interest for the information of Government.

Subordinate tenants.

40. In consequence of the tendency on the part of those who are recorded as ryots to sublet their lands or part of them, and to live on the difference between the rents they receive and the revenue they pay to Government, a considerable class of subordinate tenants is growing up who have no permanent interest in the land, and who pay such high rents that they must always be in a state of poverty. These subordinates are not recorded or recognised in the Government registers, but the existence of such a class involves the same evils as we have dwelt on in the case of the tenants-at-will in Upper India. We think that the question should be submitted to the consideration of the local Government whether it is contemplated that under the Land Revenue Settlement, Government ryots should be permitted to sublet their lands, and, if so, whether measures should not be taken for recognizing the status of such sub-tenants and recording the area they hold, the rents they pay, and the conditions of their tenure.

Position of Tenants in Madras.

Position of ryots in zemindars' estates.

41. In the Madras Presidency several amendments of the law regulating the relation of the great zemindars to the class of cultivators who hold under them, and who are in number about a million, are desirable. For many years these tenants appear to have enjoyed rights closely corresponding to those of the Government ryot, and Regulation XXV. of 1822, which governed the subject, virtually recognised the existence of these rights, and provided various safeguards for their preservation. In like manner the Rent Act, VIII. of 1865, implies, without affirming, the existence of these rights, and lays down several rules for their better enforcement. So far as we have been able to learn, the existence of these rights was never seriously questioned till a judgment of the High Court, passed in 1871, was understood as laying down the proposition that a zemindari tenant is, *primâ facie*, a tenant-at-will, and that in the absence of proof of a custom to the contrary, the landlord's right to enhance or eject must be presumed.

Effect of the Rent law on their position.

42. This view of the law (which it is possible that it may not have been the intention of the Court to affirm) is deprecated by other high judicial authority, by the Board of Revenue, and by numerous Collectors who have been consulted on the subject. The general result of the evidence received by the Commission is that the effect of the inadequate wording of the Rent Act of 1865, coupled with the ruling of the High Court, has been to alter the legal position of zemindari tenants and to render it precarious, exposing them to many forms of oppression, and excluding them from all the benefits which it was the object of the Regulation which gave a legal status to the zemindari system, and of the Rent Act, to secure for every class of tenant; and that the ill consequences of this defect in the law are likely to become more apparent as the new view becomes better known. We entirely concur in the opinion expressed by Mr. Justice Innes and the Board of Revenue that legislation is necessary, and that its postponement cannot fail to prove detrimental to the status of this large class of cultivators. The right course would, we think, be to provide that all tenancies should, *primâ facie*, carry a right of occupancy, and to throw on the landlord the onus of proving the facts from which a non-occupancy tenure has to be inferred: such facts would be, the commencement of the tenancy by a contract reserving to the landlord the right of eviction, or a clearly proved custom of eviction.

Ryots in inamdars' estates.

43. The same observations apply equally to the occupants of land in villages owned by inamdars or other persons to whom Government has transferred all or part of its right to the land revenue. In these cases, as well as in the zemindaris, it is essential that the villages should be surveyed, village accountants kept, and all village papers and statistical returns duly furnished which are needed for the information of the Government, and the record of the rights of the parties concerned; and we recommend that measures should be taken to carry out this suggestion.

Subordinate tenants.

44. The remarks which we have made in the case of the Bombay Presidency as to the position of the subordinate tenants under the registered ryots, apply with equal force to the Madras Presidency.

SECTION II.—*Assessment of the Land Revenue.*

Custom of India regulating the land revenue.

1. The duty of the assessing officer is to fix a fair and equitable sum to be paid by the land as Government revenue. From the earliest historical times the established custom has been that the owner or occupier of land should pay a share of its produce or of the value of the produce to the governing power of the day. This share was fixed in early Hindu times as one-fourth of the gross produce; and in the times that preceded British rule, it was often a larger share even than this; but under our Government it has sunk to a much smaller fraction. In Southern India the amount thus payable is fixed upon each field or block of land: in Northern India it is fixed on each village. A brief description will be given of these several systems.

Assessment in Upper India.

2. In the greater part of Northern India the persons who pay the Government revenue are proprietors, who receive rent from cultivators under them: and the problem there is to ascertain what the true rental value of the land is, and to take a certain share of it for Government, a share which was nine-tenths at the beginning of the century, then fell to two-thirds, and is now half. In the Punjab, however, so much land is cultivated by the proprietors themselves, and the rents paid by large classes of cultivators are so little in excess of what the proprietors pay as revenue, that the assessment is based on the calculated value of the produce, *i.e.*, the crop, not on the rental. In the Sikh times it amounted to two-fifths or one-half of the entire produce: at present it is, in theory at least, about one-sixth of the produce in tracts which are fertile and protected by irrigation, from one-twelfth to one-fifteenth where the crops are poor and precarious. But whether the assessment is based on the rental or the produce, the task of investigating that basis is much the same. Each village is measured up, and is found to contain a certain area of the principal classes of soils; the ordinary letting value, or the average out-turn per acre of those soils, is ascertained by an inquiry made over a large tract of country: a rate per acre is fixed for each class of soil, and the revenue of the village will depend on the number of acres it contains of each of those classes. At the same time historic continuity is not neglected: the effect of the expiring assessment is carefully examined: though the average rates work out to an increase of revenue, the assessing officer would not impose that increase on a village which had, without any obvious fault of its own, fallen into difficulties while assessed to a lighter revenue; and *vice versâ*, although the rates might work out to a decrease, he would not grant it if the village has thriven and been prosperous. The difficulties in the way of getting at the truth are numerous. Land is leased below its full value through fear or favor to an influential tenant, or the true rate of rent is concealed by fraud: in dealing with the produce it is no easy matter to calculate the average out-turn; these are the matters which test the intelligence of the assessing officer, and it is on his success in dealing with them, and in arriving at a figure which shall be just both to the proprietary body and to Government, that his reputation depends. When the assessment has been fixed on the village, it is usual for the shareholders to settle among themselves what quota of it should be borne by each; the advice of the assessing officer is often asked for, but it is seldom that he has to be called on to settle the question by an authoritative decision.

Assessment in Bombay.

3. In Bombay the assessment is carried out by a separate Department, on a very ingenious and complicated system, an explanation of which, fuller than can be given here, will be found in the Appendix.* The same principles have been adopted in Berar and Mysore. The land is broken up into blocks of from 5 to 40 acres each, which are separately assessed. The soils are classified on a uniform system according to their depth, and their faults, such as sloping surface, liability to inundation, or having a mixture of sand, clay, or gravel in the soil, all of which are sources of deterioration. The field which bears a maximum value is a level one of black soil, deeper than $1\frac{3}{4}$ cubits; this is the standard, valued as 16 annas. Every "fault" and every quarter-cubit's decrease in depth deducts one or two annas or sixteenths from the valuation. Further, a definite value is attached to three other characteristics of position: the nearness of the field to the village site; the nearness of the village to a market town; and the water privileges. Thus every field or block is valued at a certain specified number of annas or sixteenths of the standard maximum. This being done, it only remains to fix the value of the standard, or to say what should be paid per acre by a field of the first class. This is mainly done on a consideration of the course of prices and the past history of the taluka concerned. If the general tendency of prices is upwards, and they stand (say) 20 per cent. higher than they did 30 years

* *Vide* Colonel Anderson's evidence and Colonel Laughton's paper.

ago, it would be urged that the same amount of produce which the ryot then sold to pay a revenue of Rs. 100 would now bring in Rs. 120. In this case the advantage of the rise would be divided between the two parties, and the assessment be raised by about 10 per cent., provided it is also seen that the taluka has been prosperous; that cultivation has spread and waste land been taken up; and that the general level of material comfort is higher. This system was introduced originally in the year 1847, and the whole presidency, except Sindh and the South Canara district, has been assessed upon it. The 30 years' period is now elapsing, and has elapsed in many cases, and several districts have been re-settled on the same system. The instalments are usually two in number, and are fixed in January and March, or in February and April, according as the chief harvest of the year is the kharif or rabi.

It is estimated that the assessment falls on varying soils, and, according to the different productiveness of different years, at from 3 to 16 per cent. on the value of the produce; and a further proof of the lightness of the assessment is found in the fact that many of the Native States have been surveyed and settled on the same system, but that the rates there are always from 10 to 15 per cent. higher than in the British districts.

Assessment in Madras.

4. In Madras the assessment (which has been going on since about 1864, but has as yet only reached 10 districts out of the 22) is based directly on the average produce of the soil. After survey every field is classified by the eye (there are seven classes and 34 subdivisions of those classes), and experiments are then made by cutting, threshing-out, and weighing the produce of quarter-acre plots in different fields of the various classes. From these experiments the average produce per acre of each class of land is worked out. Then the average price prevailing in that part of the district during the years 1845–64 is ascertained, and after deducting from it from 8 to 20 per cent. to cover the difference between market and village prices, that rate is applied to the average quantity of produce, and so the average value of the produce per acre is obtained for each class of soil. From this is further deducted (1) about 20 per cent. on account of vicissitudes of seasons; (2) the calculated cost of cultivation; and of the balance, which is called the net produce, half is taken as the share of Government. The assessment thus made is fixed for 30 years, and the intention is that at the close of that time the only part of the assessment to be revised should be the valuation of the average out-turn per acre. A new set of price-currents will be taken, and the new assessment will be altered accordingly. The instalments fixed for the payment of revenue are generally four in number, but in some cases are as many as six; they are arranged in relation to the time and value of the ripening crops.

General view of the incidence of the assessment.

5. The statement in par. 6, Section I. of this Chapter, shows the varying incidence per acre of the land revenue on the cultivated area in the different parts of India. Much of the variation arises from the different productive value of the soil, but in some cases, and notably in Bengal, the richest province of all, the low incidence is a sign of the extreme lightness with which the revenue there falls on the land, necessarily entailing heavier taxation in other parts of the country. In all parts of India, except Bengal, the principle has been that of fixing a light average assessment, to be paid in all ordinary years, the profits of good years covering the losses in bad; but it has always been the practice to relax the demand in cases of great loss and hardship, or of any general seasonal calamity. No definite rules have, however, been laid down as to the nature, extent, and conditions of such relaxation, whether it should take the form of absolute remission or of temporary suspension, and the practice of different Governments has varied considerably in this respect. On the whole it may be said that Madras has shown most, and Bombay least, facility in granting these remissions. In Bengal (except in Orissa and the Sonthal Parganas, which are not permanently settled,) they are entirely unknown.

Moderation shown by selling price of land.

6. The moderation of the assessment is distinctly shown by the rapid increase of the price at which land has been sold in recent years. In the Punjab, in 1862–63, it was noticed with satisfaction in the Annual Reports of Government that the sale price stood as high as seven years' purchase of the Government revenue. In 1868–69 it has risen to 18 years' purchase, and in the past three years the average rate has been 27 years' purchase. In the North-Western Provinces the rise has been nearly as rapid; and though, the revenue-demand being higher than in the Punjab, the purchase rate calculated on the revenue does not come out so well, the price per acre is higher. The Bengal statistics are less precise, but there is no province in India where land is more valuable, the general price per acre being Rs. 40 to Rs. 60, and running up as high as Rs. 150 in certain districts. From the

Central Provinces no statistics at all have been obtained, and for Bombay only those of Sholapur. In Madras the price of land is exceedingly high. Even in the case of unirrigated land the minimum is said to be Rs. 14 per acre, which is the average of the Punjab, and the maximum rate is Rs. 104, while for irrigated land the lowest rate declared in any district is Rs. 26, and the highest is Rs. 360. These, however, are not figures based on actual sales and prices, but are what is conceived to be a fair average price in the different districts.

	Number of Sales Yearly.	Acreage of Sales.	Amount of Consideration paid.	Average Amount per Acre.	Land Revenue paid by the Land sold.	How many years' purchase of the Government Revenue.
			Rs.	Rs.	Rs.	
Punjab (average of 5 years, ending 1873–74) - - -	5,194	86,628	12,18,098	·14	—	22
North-Western Provinces (average of 4 years, 1873–77) - -	12,849	321,495	77,15,889	24	6,58,419	12
Sholapur (average of 4 years, 1875–78) - -	1,641	50,990	4,01,963	8	31,071	13

7. In the Punjab the sale of landed property is not decreed by the Civil Court as an ordinary process for recovering a debt, and is only sanctioned in special cases, where there is no other possible way of satisfying a creditor. The number of such sales has been insignificant. The transfer of land by private sale and mortgage in the three years, 1874–77, have concerned 850,000 acres, or an eightieth part of the area of the province. The consideration paid has amounted to 145 lakhs of rupees, of which half was contributed by agriculturists and half by non-agriculturists. The amount of land which has passed yearly into the lands of the trading community has therefore been only one five-hundredth part of the area of the province. In the North-Western Provinces the Civil Courts are not governed by the same rules as obtain in the Punjab, and sales of landed property in execution of decrees are comparatively common; so that anxiety has at times been felt as to the extent to which land has changed hands and become the property of traders. In a special inquiry, held in 1873, it was ascertained that during the preceding 35 years 17 per cent. of the land had passed from agriculturists to the trading classes, who then held 27 per cent. of the whole, but the rate of transfer had much decreased in later years, and it may be added that since this time a change has been made in the Law of Civil Procedure, under which sales of land have become much less a matter of course than they were. In the Central Provinces no information can be given on this head; but it is known that sales are not numerous, and no fear is at present felt that the money-lending classes are obtaining too large an influence over landed property. The Bombay replies show that in 13 districts the average area of land transferred yearly has been 117,635 acres, but in separate papers regarding the condition of the Deccan ryot there is much information given as to the extent to which the marwari, or money-lender, has superseded him in the possession of the soil; and the general conclusion is that the marwari dislikes assuming the responsibility of landed proprietorship, and prefers to exercise a less direct influence over the indebted ryot by retaining a lien on his crops. In Madras the money-lending classes appear very seldom to aim at occupying the position of Government ryots, but there is a large proportion of landholding Brahmins (and the same is true to some extent of Bombay), who, though non-agriculturists, hold a great deal of land, and always the best land, employing agriculturists to cultivate it on a metayer tenancy, under which, in some cases, the actual cultivator's share of the crop is as small as 25 or 30 per cent. This, however, is no new feature, nor does the practice seem to be extending; it is due to the influence and predominance exercised by Brahmins in Southern India, a fact which has a distinct bearing on many important points connected with the administration of the country.

Section III.—*Collection of the Land Revenue.*

1. The land revenue, when fixed in the manner explained in the foregoing Section, has to be paid year by year in a certain number of instalments. If the amount due in any instalment is not paid on the prescribed date, resort may be had to certain

coercive processes laid down by law, and if no other measure is effective, the defaulter's interest in his estate or fields is liable to be sold to realise his debt to the State.

Instalments.

2. With regard to the number of the instalments, the amounts payable on each occasion, and the dates when they fall due, it is generally admitted that they should correspond to the number of the main crops raised in each year, to the average dates when those crops come to maturity, and to the relative weight and value of the harvests. But though these principles are generally admitted to be correct, we learn from the evidence we have received that there are parts of some provinces, notably of Bengal and Berar, in which they are not fully carried out, and we think the attention of the local Governments should be drawn to the subject. Where one crop is mostly reserved for food and another mostly sold, if the circumstances of the people require it, larger instalments should be made payable upon the crop which is raised for the market, and smaller instalments upon that which is raised for food. The dates of payment also should be so fixed as to allow of the produce of the soil being harvested and sold before the instalment is collected, so as to avoid the losses which the landowner would suffer if he were compelled to raise money on an unripe crop or to sell it hastily in an overstocked market. Where the relation of landlord and tenant exists, this principle should be applied so that the dates of payment of the instalments of the land revenue, on which the dates of the payment of rents must to a great extent depend, should fall a sufficient time after the period of harvest to enable the tenant to realise on his crop before his rent becomes due, and to enable the landlord to collect his rents before the revenue becomes due.

Statement of opinions in favour of greater elasticity in the collection of revenue.

3. Attention has of late been directed to the possibility of a more elastic system of collecting the land revenue, so that the amount payable should not be uniform in all the years of the term for which a settlement is made, but should vary with the crops of the year and the oscillations of the seasons. It has been urged that though at present indulgence is shown in cases of serious crop-failure, suspensions or remissions of revenue are granted according to no settled principle, but on different systems in different parts of India, and are regarded as an occasional and abnormal concession in extreme cases, not as the regular and established mode of dealing with agricultural misfortunes. It is asserted that the present rigid system of collection is not only productive of temporary hardship to the agricultural classes, but often inflicts permanent injury by plunging them into indebtedness from which it is rare for them to recover. The depressed condition of the landowners in Jhansi and in the Deccan districts is held by some authorities to be due in part to the too severe enforcement of the payment of the land revenue in unfavourable seasons; and, it is the belief of many experienced officials that there is no more effectual form of relief in times of pressure than a postponement of the Government demand.

Practical measures of relief which have been suggested.

4. These opinions command great respect from the weight of authority by which they are supported. They have of late been the subject of special inquiries on the part of the Government of India with a view to ascertaining from local officials, practically familiar with the working of the revenue system, the results of their experience as to the reality of the evils alleged to arise from a system of unvarying collections, and the feasibility of the plans suggested for its reform. We have not had access to the information thus collected; the evidence, however, at the disposal of the Commission suffices to show that there is considerable divergence of opinion as to the degree in which the depression of the agricultural classes in parts of India is connected with the system of collecting the land revenue, and as to how far it would be safe or expedient to modify in any material respect the existing arrangements. Moreover when we come to consider the practical measures suggested, we find that very different degrees of elasticity are advocated by different persons. Some would make the annual demand vary in the case of individual landholders or individual villages, according to the estimate made of the harvest reaped in each instance; some would make it vary uniformly over large tracts according to the general character of the harvest in each tract; some would limit this variation by fixing absolutely the amount to be collected in a cycle of years, but permitting a larger or smaller fraction of the total to be demanded in each year according to the seasonal circumstances of the year; some would allow a variation based on a consideration of the area cultivated in each year, not of the quality of the crop raised on that area; some would adhere to the rule of a uniform moderate demand in ordinary years, allowing variations only in the case of almost complete failures in which so great a proportion of the crop is destroyed over a large area that Government is compelled to set on foot measures of relief.

Impossibility of inquiry into individual cases.

5. So far as any of these proposals would involve an examination into individual cases, we consider that they are inadmissible. However desirable it may be that district officers should possess a minute knowledge of the circumstances of each individual and of the crops that succeed each other during the year in each village, we do not think that it is within the limits of practical possibility to acquire the knowledge needed for altering the demand to suit the requirements of every case. To do this would involve personal inspection of at least a portion of every village twice a year; if this is to be done by officers of superior rank, whether European or Native, the staff in each district must be largely increased, and if it is entrusted to inferior officials it could hardly fail to lead to serious malpractices. Nor would personal inspection of the crop alone be sufficient without inquiry into the circumstances and character of the cultivator, for often it would be found that a poor out-turn in a special case is due to idleness, illness, or absence from various causes, not to an unfavourable season. When the area of an average district and the number of the estates or holdings in it are considered, it will be seen how impossible it would be (even if it were expedient) to carry out effectively such schemes as these.

Advantages of certainty in demand for land revenue: (1) as regards the State;

6. With regard to the general question of introducing more elasticity into the demand for the land revenue, we must also bear in mind that although it has some of the characteristics of rent, as distinguished from taxation, and although the State to some extent stands in the position of landlord to those who pay land revenue, yet this analogy is in the nature of the case but partial. So far as the land revenue partakes of the character of rent, it is wholly impossible that the State, through its officers, can obtain the intimate knowledge of the condition of individual cultivators which is possessed by an ordinary landlord, and nothing but mischief could come of the attempt to regulate State action by the presumption that such knowledge could be obtained. So far again as it is of the nature of ordinary taxation, the collection of the State demand will necessarily be largely governed by the principles which apply to such taxation, and among these certainty and inflexibility are universally recognized as most important.

(2) as regards the landholder.

7. Nor should we forget that while the danger of too great rigidity in this matter cannot be denied, there are, even looking at the matter from the payer's point of view, great advantages attaching to the principle of a fixed demand, and that these should not be lightly thrown away. It provides a strong incentive to thrift and self-reliance by encouraging the habit of laying by in a good year to meet possible losses in a bad year. Nothing could be more injurious to the character of the landed classes of India than that a man should not know at the beginning of a year what he will have to pay to Government during the course of the year, or should be led to believe that by collusion with a Native official, or by working on the sympathies or ignorance of the English officials, he may obtain a decrease in the year's demand. While, therefore, it may be conceded that some relaxation in the strict enforcement of the State's demand is sometimes necessary, the more clear and fixed is the principle on which that relaxation is conceded the better will it be for those in whose favour it is granted.

Relaxation of demand should only be conceded in case of exceptional distress over a considerable tract;

8. For these reasons we are not prepared to advocate the adoption, as a normal system, of any of the proposals for making the collection of land revenue vary with the ordinary variations of the season, and we think that it should only be on exceptional occasions of calamity, extending over considerable tracts, that such concessions should be made. In the extreme case of a failure of the crop caused by a drought so severe as to produce famine, we have already in Part I. of our Report, para. 160, expressed our opinion that nobody should be forced to pay the land revenue by borrowing, when his crops have been such as to leave him no surplus above the amount needed for the support of himself and his family. The principle thus laid down is one of general applicability, and we think that it may be usefully adopted as indicating the correct procedure in lesser failures of the harvest, though they may not be so extreme, or may not affect so large an area, as to produce a famine. But whereas in famines there is considerable probability that the suspensions will, in part at least, end in remissions, the expectation in these minor cases should be that the arrears will be recovered in subsequent years of prosperity. By making the degree of relaxation uniform over considerable tracts of country according to some uniform and clearly ascertained rule, the evils of personal favouritism and official corruption and oppression would be to a great extent obviated. The rules which at present exist in the North-West Provinces provide for a suspension or remission of rent, accompanied by a corresponding suspension or remission of revenue, over tracts of country the crops of which have suffered from hailstorms and similar visitations;

and we should be glad to see a more systematic application of this principle, both in that province and other parts of the country, which shall meet the class of cases to which we refer. In order to be efficacious such relief should be given at an early period. If suspensions are granted only when their necessity is proved by the impossibility of collecting the revenue, the time when they would be most effectual in saving the landowners from embarrassment will probably have passed.

But collectors should use discretion in individual cases.

9. We would, however, confine the freer use of suspension to seasons of exceptional distress. With regard to landowners or ryots who fall into difficulties in ordinary years, we do not consider that any radical change in the prevailing method of revenue collection is needed, though a reasonable indulgence may well be shown in a few exceptional cases of individual misfortune. The collector should understand that Government looks to him to manage its estate to the best advantage, and that notwithstanding the general principle of the settlement he is entrusted with discretion to postpone the demand in the case of persons whom it is to the public interest to maintain on the land. The interest of the landowner and the interest of the Government, as the chief landlord, are identical, and it should be understood that the collector is not to sacrifice a good tenant to the principle of the settlement by rigidly selling him up and ejecting him because his revenue is in arrear.

Manner of working the principle of elasticity.

10. If, in accordance with our suggestion, an officer of the Agricultural Department is appointed in each district whose main duty shall be to make himself acquainted with the state of the crops and the condition of the people, it will not be difficult for the officer in charge of the district or the subdivision to obtain accurate information as to the character and out-turn of the season's crop in each part of the district, so that before the instalment payable out of that crop becomes due he may be able to form an opinion whether there has been such a disastrous failure as to call for a general suspension, of the whole demand or part of it, in any tract or portion of the district; or whether he may expect to have cases of individual distress or difficulty brought before him for orders. In either case the collector should have power to postpone the demand, reporting his proceedings and the grounds on which he has acted for the orders of superior authority. The responsible officers should be guided by the principle that they are bound to act with liberality in such cases, and to avoid measures the necessary result of which is to plunge the landowners into debt. At the same time such liberality should not be extended to the wealthier members of the landed classes, nor to those who (though within the tract whose crops have suffered) have from any cause escaped loss. In cases where the relation of landlord and tenant exists, measures should be taken (such as we have adverted to in paragraph 161 of the first part of our Report) to provide that whenever a suspension of revenue is granted to the landlords a corresponding suspension of the demand for rent should be conceded by them to the subordinate holders.

System of yearly assessment on cultivation in riparian lands.

11. Where local conditions make the possibility of cultivating the land unusually precarious, as in the case of tracts habitually flooded by river inundation, which may fail to take place, or be excessive, or may subside too soon or too late for agricultural operations to be carried on, an exceptional procedure would appear desirable. We approve the system, successfully adopted in the Punjab in such cases, of carrying out a yearly rough measurement, according to the results of which a fixed rate of revenue per acre actually cultivated is levied. This plan would probably be found more suitable for Sindh than the Bombay form of settlement now being introduced there, and we think it possible that the application of a similar principle might be beneficial in any exceptionally dry upland tracts, such as exist in some parts of India, where the rain-fall is very precarious and frequently insufficient.

Exceptional system in the case of extremely depressed populations.

12. It has been suggested that although a system of varying assessment is not generally advisable, it may be suitable to the case of tracts of country where the landed class, either from want of thrift or skill in husbandry, or from other causes, are in a condition so depressed as to call for special treatment. The plan of a fixed assessment, regularly collected, is based on the assumption that the people by whom it is to be paid are on the whole of a sufficiently thrifty and far-sighted character to lay up in good years the means of meeting the demand for revenue in years of less prosperity. But there are populations where such qualities exist, if at all, only in a rudimentary form; and with these the rigid enforcement of the payment of revenue may tend to an indebtedness leading on to complete insolvency. The Government of India not unfrequently is called on to deal with particular districts where indebtedness and insolvency have assumed serious proportions, and where the general condition of the community is so unsatisfactory that it cannot be restored to prosperity without resort to exceptional measures. It has been suggested that the Government in such cases

should apply a system of revenue collections so graduated at the discretion of the revenue authorities, with reference to the character of the season, as to produce in the long run a prescribed average, the collections being heaviest in the most prosperous years, and lessened or altogether remitted in seasons when little or no margin of profit has been yielded by cultivation. Such a system might work beneficially, along with other remedial measures, for the relief of an exceptionally involved or incapable agricultural community which has been proved to be unable to maintain itself without such interposition, but as it would necessarily involve a supervising establishment largely in excess of that ordinarily employed in a district, the expense and other evils attendant on it are such that the experiment would only be justified by very extraordinary circumstances, and as a temporary expedient, so long as the community is held to be incompetent. It is questionable, however, whether in such an extreme case it might not be simpler and preferable to revert to the old practice of taking the revenue in kind by partition of the crop.

SECTION IV.—*Indebtedness of the Landed Classes.*

Indebtedness a serious evil,

1. No subject has been more strongly and frequently pressed on our attention than the evil results which spring from the degree to which the landowners are sunk in debt, the asserted rapid increase of their indebtedness, and the difficulty they find in extricating themselves from such burdens. In some parts of India, notably in the four districts of the Bombay Deccan and in the Jhansi district, their indebtedness has become so grievous that the Government has recently been led to take special steps for their rescue, and in other parts it has at different times intervened to protect special classes whose ruin, otherwise unavoidable, it was thought necessary, on political grounds, to ward off. On a topic which has been so long and earnestly debated by every Indian administrator of importance it is difficult to make any new suggestion. It was fully discussed last year in the Council of the Governor-General of India, and remedial measures were adopted which are still only in an experimental stage, so that we can offer no conclusion based on the result of their actual operation; but the subject is one of such gravity that the Famine Commission have felt bound to give it their most careful consideration.

which existed before the British rule,

2. We have found no reason to believe that the agricultural population of India has at any known period of their history been generally free from debt, although individuals or classes may have fallen into deeper embarrassments under the British rule than was common under the Native dynasties which preceded it. It has been usual for the landholders in all times habitually to have transactions with the money-lender of their village, with whom they carry on a running account on friendly terms, taking from him advances for seed and food in the months preceding the harvest and handing over to him the greater part of their produce, from the money proceeds of which he pays their dues to the State and places any balance to their credit. Under this arrangement the ignorant cultivator was relieved of much trouble and responsibility, and his payments to the Government were conducted for him by the money-lender or village headman. His account might run on amicably for a long series of years unless extravagant expenditure on family ceremonies, or a failure of the harvest from drought, should involve him in difficulties beyond his ability to meet. Even in such cases the money-lender would be deterred from extreme measures by popular opinion, and by the knowledge that he could count on no support from the ruling authority in selling up and reducing to destitution a member of the class on which the payment of the land revenue depended. Thus, though the cultivator (in the absence of any power of obtaining loans on the security of his holding) was never deeply involved, he was seldom free from debt, and lived the life of a contented serf, exempt from the risks and responsibilities which accompany the possession of independent rights, but also without any stimulus to raise himself or improve his position.

but has increased under that rule.

3. The changes which have been introduced under the British Administration are for the most part those which will always occur in the progressive development of social life from a simple to a more advanced stage. Of these changes those which have affected the landed classes consist chiefly in their admission by the State to better defined rights of property in their holdings, combined with the more complete recognition of the force of contracts, and the obligation on the courts of justice to enforce them. It is to be expected in every forward movement in the education of a people that while the result is beneficial to the country as a whole, some classes

or individuals will fail to display the qualities needed to benefit by the advantages offered, and will suffer inconvenience under the novel circumstances to which they are unable to adapt themselves. But although a section of the landholders has thus suffered, we ought not to overlook the fact that the class as a whole has prospered under British administration, and that the more enterprising and substantial landowners have greatly benefitted by the enlargement of their proprietary rights, and by the moderation with which the land revenue is now assessed.

Extent of indebtedness in different parts of the country.

4. We learn from evidence collected from all parts of India that about one-third of the landholding class are deeply and inextricably in debt, and that at least an equal proportion are in debt though not beyond the power of recovering themselves. It is commonly observed that landholders are more indebted than tenants with occupancy rights, and tenants with rights than tenants-at-will, a result obviously attributable to the fact that the classes which have the best security to offer are the most eligible customers of the money-lenders. It does not appear that in this respect one province greatly differs from another, but certain localities are from special circumstances either above or below the average condition. Thus in the Punjab the canal-irrigated tracts are stated to be highly prosperous; in Eastern Bengal the profits of jute cultivation have enriched the cultivating tenants; in the Central Provinces the landholders have profitted in the same way by high prices of cotton and large exports since the American War; in Madras the ryots of the deltas are in easy circumstances. On the other hand the precarious out-turn of the crops, with other adverse circumstances, has grievously depressed the landholders of the Bombay Deccan and the adjoining districts of Madras, as well as those of the somewhat similar region of Jhansi; and many of the talukdars of Oudh, of Sindh, and of Guzerat, without such excuse, have been led by a course of extravagance into a state of bankruptcy, to relieve them from the consequences of which special legislative measures have been framed.

Difficulties of the money-lender, and risks of the profession.

5. With regard to the creditors of the landed classes we are informed that in the more prosperous parts of the country the substantial landowners are themselves engaged in money-lending, and that neither they nor the professional money-lenders of the better class often employ the agency of the Civil Courts against their debtors. But it has happened in some cases that when a district has fallen into depression it has attracted an inferior class of foreign usurers, who have no scruples in using every means open to them to secure a profit on hazardous transactions, and who, working entirely through the machinery of the Courts, are not inclined to cultivate sympathetic relations with the people, by whom they are detested in turn. It is not probable that the gains of these usurers are excessive, but they are exacted with the utmost degree of friction, hostility, and suffering, with the unfortunate result of attaching odium to the civil tribunals.

Village banker necessary for the agriculture of the country.

6. However just may be the terms of abhorrence applied to the "Márwári," or foreign usurer, it must be remembered that he is the product of a diseased condition of the community. The like condemnation must not be extended to the village banker of the better class, with whose useful services the rural communities of India have at no time been able to dispense. Any violent interference with the legitimate business of the rural banker would be disastrous, as it would result in the calling-in of all agricultural loans, and the transfer of this capital to some other field of investment. The State should rather assist him in his transactions so far as they are lawful, should afford additional facilities for the recovery of reasonable claims, and should thus induce him to make loans at a lower rate of interest than that which now prevails, under the custom established under Native rule when the security was very inferior. The aim of all remedial measures as regards the landholder should be to make his dealings with his banker fair and open, and while protecting him from extortion or oppressive measures of coercion, to constrain him to pay his just debts to the full extent of his means, but by less cruel and ruinous expedients than imprisonment or the sale of all he possesses. The means available to these ends are cheap and accessible courts which shall give full consideration to the equity of every claim, and a simple method of recovering debts.

Causes of indebtedness.

7. The origin of debt among the landed classes is traceable to various causes, among which the most prominent are the failure of crops from drought, expenditure on marriage or other ceremonies, general thriftlessness, an improvident use of sudden inflations of credit, the exactions of an oppressive body of middlemen, and administrative errors such as unsuitable revenue settlements; and debt once incurred very rapidly grows with exorbitant rates of interest. In so far as the causes of indebtedness lie in the inherited tendencies of the people, such as want of forethought,

and readiness to promise anything in the future in order to secure present gratification, no remedies are possible, except through the spread of education, the gradual growth of provident and self-denying qualities under the influence of painful experience, and the success of the stronger and thriftier individuals in the struggle for life. It is obvious that there is danger lest any intervention of Government should hinder the growth of such qualities, or protect the weak and foolish too completely against the consequences of their own action. But where the misfortunes of the landholders have ensued on the introduction of novel institutions somewhat too advanced for their present stage of intelligence and forethought, it is the duty of the Government, for a time at least, to moderate the stringency of the action of those institutions; and this has commonly been the object of the remedies which have been suggested.

Rigid collection of land revenue.

8. Among the administrative measures by which indebtedness is alleged to have been caused, is the system of rigid and regular collection of the land revenue. Seeing the very small proportion which the land revenue bears to the gross produce of the land, there cannot be much foundation for this view, though numerous instances have been given of men who in times of calamity have been forced to borrow, and who have never been able to recover themselves afterwards; and it is to prevent such a misfortune as this that we have already recommended that on such occasions greater leniency should be shown in postponing the demand till better times. But we think that too much weight should not be attributed to this cause; the fact that landowners who have no land revenue, or only a light quitrent to pay, are often also deeply embarrassed, proves, if indeed it required proof, that the payment of the land revenue is not the main cause of debt. If a man spends all his income on himself, and borrows to pay his rent or taxes, it can hardly be said that his indebtedness is due to the fact of his having rent and taxes to pay, when these charges bear so light a proportion to income as the land revenue does to the gross out-turn of the land.

Action of Civil Courts.

9. It has, again, been alleged that the action of the Civil Courts has contributed to the indebtedness of the agricultural classes, and various suggestions have been made for constituting tribunals and a procedure which may provide more effectually against this result. Sufficient regard is not, it is said, in all cases paid to those equitable considerations which are of such essential importance in the adjudication of disputes in which the ignorance, improvidence, or the necessity of the one party places him at the mercy of the superior intelligence and resources of the other. Contracts, the extravagant onesidedness of which bespeaks a sense of hopeless weakness on the one side and a spirit of unscrupulous exaction on the other, have been enforced by the Civil Courts with too mechanical an adherence to the letter of the law, and too little regard to the circumstances of the parties and the substantial merits of the case. Native customs which tempered the severity of contracts, such for instance as that which restrained the rate or amount of interest, have been swept away, and a rigid and elaborate legal system has too often proved only an additional instrument of oppression in the hands of the more wealthy or better instructed litigant, and an additional cause of ruin to the impoverished agriculturist.

Modifications in procedure lately introduced.

Acts X. of 1877 and XII. of 1879.

s. 266.

s. 326.

s. 320.

s. 321–325.

10. Several alterations have, however, within the last few years been made in the code of civil procedure with a view to providing adequately for the relief of insolvent debtors, to guarding against the oppressive use of the machinery for executing decrees, and especially mitigating the harshness of its operation as regards agriculturists. Tools, implements of husbandry, the cattle necessary for tillage, the materials of his house are in the case of an agricultural defendant exempted from attachment or sale in execution of decree. The district officer is further empowered to represent to the Court that the sale of land in execution of decree is objectionable, and that the decree can be satisfied by temporary alienation or management, and thereupon the Court may authorise such satisfaction. Another provision enables the Government in any particular area to transfer the execution of such decrees as involve the sale of land to the district officer, who is thereupon invested with authority to deal with the land, adopting various courses for satisfying the decree, and avoiding the necessity, except in the last resort, of an execution sale. The Government, the High Courts, and other superior tribunals will no doubt continue to watch with care the operation of the law, and to take every precaution against its abuse.

Suggested substitution of arbitration for action of Courts.

11. Some evidence was brought before us in favour of a simple and inexpensive system of settling disputes by the agency of unpaid arbitrators, and it was suggested that in this way relief might be afforded to agricultural debtors. We observe, however, the existing law makes ample provision for recognising references to arbi-

tration by consent of the parties, and for giving to the awards of arbitrators so appointed the form of a decree. It has not, however, been found that this mode of settling disputes is generally popular; and we were informed that recent changes in the Stamp Law, by which a heavier fee than before is imposed in submissions to arbitration and awards of arbitrators, will tend still farther to discourage resort to this mode of adjustment. If this prove to be the case, it would be matter for consideration whether the Stamp Law might not with advantage be altered in this respect. Arbitration, other than that by consent of the parties, stands of course on an altogether different footing, and there is no reason to suppose that it would be for the benefit of any class of litigant. On the contrary, it would be likely to open the door to much of that corruption which is so serious a difficulty in the administration of justice in India. The Civil Courts are strictly controlled and supervised, and are, whatever their other imperfections, incomparably purer than any tribunal before known in India; nor is it probable that an equally high standard of purity would be attained by recourse to a less exact procedure and less responsible agency.

Special measures recently adopted.

12. The two most important cases to which the attention of Government has recently been called by evidences of special distress are those of Jhansi and the Bombay Deccan districts. In both of these the popular tendencies to indebtedness are said to have acquired an increased power for mischief under the novel circumstances created by "the fatal gift of transferable rights in the soil, and the establishment of Civil Courts "in an ignorant population." In both, the ruin of the landowners has been precipitated by the harsh and extortionate practices of an inferior class of money-lenders. In the case of Jhansi remedial measures are still under consideration, but for the four Deccan districts a special remedy has been devised and is now on trial.

Condition of the Bombay Deccan.

13. The facts of the case which the Act for the relief of indebted agriculturists in certain parts of the Deccan was designed to meet, explain how a rural population may sink below the level of average prosperity. Much of the soil is poor, the rainfall capricious, and the out-turn of the harvest liable to violent fluctuations. The conditions which prevailed in the Deccan under Mahratta rule were unfavourable to steady industry, and the present generation has come within the influence of a most exceptional disturbance of prices. A sudden rise in the value of cotton at the time of the American War occasioned a vast inflation of credit, which was fed by a corresponding influx of capital seeking investment, whereby the landholders, under cover of the proprietary rights they had acquired, were tempted to improvident borrowing. Being deficient in the qualities of forethought, energy, and self-reliance, they were thus laid open to new dangers, while their improvident habits were such that the low unvarying revenue assessments of our Government brought them no advantage. The extravagant habits engendered by this temporary prosperity were not easily laid aside, and the subsequent collapse in prices, combined with bad seasons, threw them into debt. As indebtedness became more hopeless and inextricable, the money-lender resorted more freely to the aid of legal process, and the debtors, exasperated at the invasion of their cherished rights in their holdings, were driven to despair, and finally on several occasions to rioting and violence. The proportion of landowners seriously embarrassed does not appear to exceed 30 per cent., but the amount of debt in proportion to income is heavier than that stated to exist in other provinces, and about two-thirds of the debt is said to be secured by mortgages of land.

Particulars of the Deccan Ryots Act.

14. By the Act which has recently come into force for the relief of the Deccan agriculturists, village registrars are to be appointed before whom agriculturists are to execute all instruments relating to obligations for the payment of money or charges on property, and all conveyances and leases: any deed not thus registered and attested is not to be deemed valid. Agriculturists are entitled to demand receipts for all payments, as well as yearly statements of account, or pass-books in which their account shall be written and attested by the money-lender. The local Government is empowered to appoint village munsifs, with jurisdiction in small suits of which the subject-matter does not exceed ten rupees, a system which has been found to work well in the Madras Presidency. Suits of larger value will be tried by additional subordinate judges, who, when the defendant is an agriculturist, will, as a rule, inquire fully into the history of the debt, take a separate account of principal and interest, credit the debtor with any money repaid, disallow all interest which the Court deems unreasonable, follow in decreeing the amount due the principle of Hindu law known as *dam dupat*, under which the interest must not exceed the principal, and fix instalments for the payment of the sum decreed. The Government will doubtless exercise the powers provided by law for reducing the expense of stamps and fees in these Courts. If the decree is for less than 50 rupees the Court may discharge the

agriculturist at once on payment of as much as he is able to pay. If the defendant is found to owe 50 rupees or upwards the Court may treat him as an insolvent, and any agriculturist whose debts are of similar amount may be declared an insolvent on his own application. In such case all claims against him are called in, and the amount to be recovered from him is ascertained by inquiry into the history of them all. No agriculturist can be arrested or imprisoned in execution of a decree for money, nor can his immoveable property be attached or sold unless it has been specifically mortgaged. In the latter case the Court may direct the collector to let the property for a period not exceeding 20 years, if thereby a premium can be obtained equal to the amount of the secured debt, or otherwise to sell it. If the debts are not secured by mortgage, the Court may direct the collector to manage any immoveable property (other than houses or buildings) not required for the support of the insolvent and his family, for a period not exceeding seven years, and the proceeds to be divided among the creditors. It is understood, though the case is not directly provided for in the law, that it is the intention that the agriculturist should, whenever possible, be retained as cultivator of the managed property, paying a reasonable rackrent under suitable precautions. While any property is in the collector's hands the insolvent is not allowed to encumber or alienate it.

Its probable effect on the money-lenders.

15. Experience will show whether, after the mass of existing debt is disposed of under these provisions, the money-lenders will withdraw their capital beyond the reach of the Act. Some uncertainty is felt on this subject, but there seems no reason to doubt the assertion of many Native witnesses, including village bankers, that the creditors are prepared to make large sacrifices in return for the interposition of Government to effect prompt recovery of their money, and the measure will at any rate have the effect of clearing off the existing burthen of debt.

Principles of the Deccan Ryots Act generally applicable: (1) Multiplication of minor courts;

16. The Deccan Ryots Act has been passed so recently that we have no information as to how it is found to work in practice, and such experience can be the only safe guide in this subject; but if this proves satisfactory the principles embodied in it might, with advantage, be applied to other parts of India. Two of the principles contained in the Act may perhaps be singled out for especial reference. The multiplication of small village Courts, presided over by the village headmen, and of village registrars, before whom all bonds for debt must be executed, would probably be of good effect in all parts of the country. Considering that of the 1,400,000 suits annually disposed of by the Courts of British India, 1,200,000, or 85 per cent., are for sums under Rs. 100, and 630,000, or 44 per cent., for sums under Rs. 20, a strong *primâ facie* case appears to be made out for tribunals which shall dispose quickly, easily, and cheaply, and by a procedure suitable to the wants of a humble order of litigants, of a vast mass of petty litigation. Village tribunals of this description already exist in the Madras Presidency, and we are glad to know that the Government of India has invited the various local administrations to consider how far it may be possible or desirable to extend the Madras system to other provinces.

(2) Creation of special courts,

17. The second is the creation of special courts with a procedure specially devised to take up and dispose effectually of cases of this kind. Wherever the indebtedness of the landowners has assumed serious proportions, the appointment of special Courts to examine into their debts, to reduce their amount to the sum equitably due, and to fix instalments which would pay the debt off in a given number of years, at a rate of interest proportionate to the diminished risk, would appear to be the only effectual way in which Government can remedy the evil.

which should always go behind the bond.

18. It is, we think, deserving of consideration whether the existing law of contract and the rules of procedure provide adequately for the case of the ignorant peasants in any transactions which goes beyond the scope of their ordinary life. It is characteristic of these classes to promise anything, to submit to any condition for the future, if only relief for the present can be secured; and it is in dealing with such cases that the Indian Courts are said to fail in providing adequate protection The Contract Act does, we understand, mention certain specific grounds, such a mistake, fraud, or undue influence, on which contracts may be disputed; and th general duty of following "justice, equity, and good conscience," which has at a times been enjoined on Indian Courts, renders it obligatory on every judge to secu as far as possible, the interests of justice, in its highest sense, between the parti before him. But if it be the case that this obligation is sometimes insufficient recognised, it would be well that the language of the law on this subject should rendered more explicit, and the duty of the judge be more distinctly pointed o Instances were brought to our notice in which bonds, the terms of which wer a high degree suspicious, have, on the mere admission of signature by the defend

been without further inquiry made the basis of a decree which involved most unfair advantage to the one party and the total ruin of the other. It should, we think, be expressly enjoined on the judge to satisfy himself that the defendant was fully alive to the character of the transaction, that the bargain was not extorted in a moment of extreme necessity, that the relations of the parties were such as to leave each a free agent, and generally to apply to the contract all those considerations which the scruples of English equity judges have interposed between improvidence and those who would fain turn it to their own advantage.

Suggested modification of the Act as to management of debtor's land. Sec. 323 (*d*).

19. We advocate, however, one modification of the Bombay Act in respect of the provision which, if the land has been specifically mortgaged, necessitates its alienation, temporary or permanent, from the management of the mortgagor. This provision is severer than that of the amended Civil Code under which the collector may liquidate a decree by managing the land, for a term not exceeding 20 years, through another; that "other" being, if the collector thinks fit, the mortgagor himself, who may then be kept on as the cultivator of the land. If the debtor is turned out, and the land is let to another person for a term of years, at the expiry of that term the debtor will re-enter with no increased sense of the importance of thrift, but with additional incapacity, through the disuse of years, for managing the land. We therefore recommend that in all such cases the principle should be followed of paying off the debt by instalments, the land remaining in the hands of the debtor, and being managed by him, on payment of a full rent, the excess of which above the revenue would go towards the liquidation of the debt; such payments being collected from him by the Revenue courts along with the land revenue, and being made over every half year to the creditor. In the event of the debtor's failure to carry out such an arrangement, and to pay the instalments thus fixed, unless he is prevented by drought or any other exceptional calamity, he should be ejected and his rights in the holding sold, when it may be hoped that he would be replaced by a better and more thrifty man.

Assistance of Revenue officers in recovery of debts.

20. As a supplement to cheap and accessible Civil Courts, the assistance of the Revenue officials in the repayment of agricultural debt is probably the greatest benefit to both debtor and creditor which the Government is able to offer. The Revenue officers are possessed alike of the means of ascertaining what the debtor could pay, and of realizing the instalments of his debt with the minimum of cost and risk to the creditor. In Upper India a zemindar who has a gross rental of Rs. 100 pays Rs. 50 as land revenue and about Rs. 15 in cesses. Rs. 10 must be set aside for the vicissitudes of the season, and Rs. 25 may be taken as the minimum annual profit he receives as a proprietor. In the majority of cases he himself cultivates a portion of the estate; if, then, he is content to pay a cultivator's rent, and to live on a cultivator's profit, he is able to pay his whole proprietary profits, or Rs. 25 a year, or 50 per cent. on his Government revenue, in liquidation of his debts. Such an instalment will clear off a debt of Rs 100 at 12 per cent. in six years, or of Rs. 200 at 9 per cent. in 14 years. In Southern India the margin between the Government rates and a full rent is probably not so great, but the Revenue authorities would decide what the average profits of a ryot are. On such considerations the instalments should be fixed, and when fixed they might be collected with the land revenue and paid over to the creditor, who would thus be freed from all trouble in executing his decree, and from almost all risk.

Diminution of the rate o interest consequent thereon.

21. The risk being thus lowered, it is but reasonable that the rate of interest should be reduced; and this is an essential part of any scheme for paying off large amounts of debt. It may not be wise to fix by law the limits of the rates of interest which the Court shall decree, but it would seem desirable that the local Government should be authorised to indicate to the Courts the maximum and minimum rates that should with a general reference to the value of money ordinarily be paid. At present 24 and 36 per cent. are commonly paid by agriculturists, rates which would be fatal to successful agricultural enterprise in any country. Six per cent. is the rate now usually paid by Native merchants when they borrow from each other as a temporary convenience, and something above this may be necessary in India in the case of profits dependent on the land and the weather, but the object should be not to recognise any rate in excess of that which would be reasonable, having in view the character of the security offered.

Restrictions on future mortgages.

22. The same principle adopted for dealing with existing debt might also be applied in the cases of new loans raised by owners of unencumbered estates. A mortgage need not be an agreement entered into privately, and on very onerous terms, between the money-lender, taking all risks, and the landowner, assenting to terms he does not

understand, but might with advantage to both parties rather be an agreement openly made between them before the Collector, and on terms sanctioned and to be enforced by him. Any mortgage not so made would rank only as a simple unsecured debt, and no cognizance of it would be taken by the Court which alone would have jurisdiction in respect of landed debts. Personal and unsecured debts would not be put beyond the pale of the law, but decrees for them would not be liable to be executed against the land. In special tracts it might be thought advisable that the Collector should be empowered to refuse his sanction to a loan incurred for an extravagant or merely ceremonial purpose, or for any cause but one of agricultural improvement or necessity.

Mode of carrying them out.

23. The landholder would in such case execute an agreement before the Collector, or the Court which deals with agricultural debts, to repay the loan, principal and interest, in an appointed number of instalments, which would be collected from him in the same way as the land revenue, next after any sums due to the Government. The estates on which such loans are secured should be free from other encumbrances, and it should probably be enacted that no claims on the land should be recovered except by the Collector as above stated, and that he should recover none except those thus openly arranged before him. The landholder would be required to surrender his right of transfer or sale while his holding is thus charged. His power of improvident borrowing would certainly be restricted, but he would be protected from the danger of losing his land, while the creditor would have good security up to a certain definite and calculable limit, and would be able to lend at moderate interest. If a landholder is unable to offer the security necessary to enable him to obtain a loan on these terms, we would not withdraw his power to sell his rights. Nor would we be understood to recommend any interference with the free transfer of landed property, or with the rate of interest, except in cases where, and so long as, the condition of the landholding community presents unhealthy symptoms which seem remediable by such expedients.

TABLE OF CONTENTS.

(N.B.—*The pages are numbered consecutively with Part I. of the Report.*)

PART II.—MEASURES OF PROTECTION AND PREVENTION.

Q 2182. Wt. P. 819.

Chapter IV.—Agricultural Improvements and Organisation of an Agricultural Department.

Section I.—*Improvements in Agriculture.*

Improvements which have been attempted.

1. The success which has been obtained hitherto by the efforts made by Government to improve Indian agriculture has not been very encouraging; but an account of these efforts is not without interest, although they include a large admixture of failures and mistakes. The reforms which have been attempted have been of four kinds—the introduction of new crops, improvements in the method of cultivating the ordinary crops of the country, the adaptation of English or other machinery to Indian conditions, and the breeding of cattle.

New staples.

2. The most important of the staples the cultivation of which has successfully been introduced into India are tea, coffee, the Mauritius sugar-cane, New Orleans cotton, cinchona, and potatoes. Tea, as is well known, is now extensively grown in Assam and Cachar, in the hill districts of Bengal, the North-Western Provinces, the Punjab, and Madras. The establishment of this important trade is one of the most remarkable successes in the direction of agricultural improvement which the Indian Government has achieved. Although the tea tree is indigenous in Assam and the hills of Eastern Bengal, its use was entirely unknown; the introduction of the Chinese variety, the culture of the plant, and the manufacture of the leaf for commercial purposes are mainly due to the experiments carried on under official management. Experience has shown that the indigenous plant is better suited to the climate of Eastern India than the hardier Chinese variety, and it is now almost exclusively raised there, the Chinese plant being chiefly grown in Northern India. At the present time it is estimated that about 200,000 acres are under tea, and the export to England in 1879 amounted to about 40 million pounds, value about 3 millions sterling, besides a considerable quantity consumed in the country and exported to Central Asia. Coffee cultivation was introduced from Ceylon, and is confined to the Nilgiri and Wynad districts of Madras, to Coorg, and the adjacent part of Mysore, the climate of northern India being too cold for it. The exports of 1875–78 averaged 350,000 cwts., value about 1½ millions sterling. The Mauritius sugar-cane, larger and more succulent than the native kind, and specially fitted for consumption as a sweet-meat, has spread all over India. New Orleans cotton, the naturalisation of which is due to a former Collector of Dharwar, is now very widely grown in that district and the adjacent parts in the south of the Bombay Presidency. In a similar way the Hinganghat cotton was introduced into Khandesh, a great improvement on the former local variety. Potatoes are largely grown in the hilly tracts of all India and in some of the plain districts of Upper India, and begin to form an integral portion of the food of the country. Though the best methods of treating the cinchona tree for the production of bark are still disputed, its cultivation has been largely extended with complete success both on the lower slopes of the Himalaya in Northern Bengal and in the Nilgiri hills of Madras. On the other hand, various ineffectual attempts have been made to introduce other foreign staples, among which may be mentioned Carolina rice.

Better cultivation of special crops.

3. Something has been done to secure a better system of cultivating the staple crops of the country and of manufacturing the produce. Indigo has long been an almost exclusively Indian staple, chiefly produced in Bengal; its growth in Upper India has been greatly increased by canal irrigation. The manufacture is to a large extent in the hands of Europeans, and the dye produced by them fetches two or three times the price of that turned out in native vats, owing to the superior skill, care, and implements used in the process. The growth of the poppy for the production of opium in British India is under the control of Government, and is not permitted without a license: this gives an opportunity to the officials of the Department to insist on care and industry in its cultivation, and the whole of the crop is brought to be manufactured at the Government factories, where great attention is bestowed on its preparation, to ensure the maintenance of a uniform character in the market. The exports of Indian tobacco have hitherto been almost exclusively leaf and not manufactured, and though it is grown in almost every village throughout India, and is an article of universal consumption among the people, the quantity exported is small. The curing and manufacture have, however, been carried on with some success in Madras; and an experiment in growing and curing it after the American fashion has been commenced

and has already achieved some success in two places, Ghazipur, in North-Western Provinces, and Poosa, in Behar. The Punjab Government made attempts to introduce the cultivation of flax, and to induce the agriculturists to grow it for fibre, instead of, as at present, for seed, but the results have not been satisfactory or remunerative.

Better cultivation of ordinary staples.

4. With regard to the ordinary food staples of the country, the cereals, pulses, and millets, it cannot be said that any improvement has been effected within the last 20 or 30 years in the method of their cultivation or in their out-turn of produce. On the contrary, as time has gone on, as the pressure of population on the soil has increased, as peace has enabled more labour to be devoted to agriculture, and as canals have in parts provided a more liberal and constant supply of water, it can hardly be doubted that the temptation has been felt to raise more crops off the soil, and to extend cultivation to poorer soils which formerly were unremunerative, and that thus to some extent the earlier cultivated and better soils have been exhausted, and the addition of the poorer ones has lowered the general average of production. It is easier to point out these faults than to devise the remedy. The main defects of the Indian system of agriculture consist in ploughing too superficially, in not giving enough manure, and in the reckless use of water when the cultivator can get it with little labour. Of these faults he is generally conscious, but they are largely due to his poverty, and it is of no avail to ask him to correct them as long as he is unable to buy and to feed more and stronger bullocks, to save his manure, and to resist the temptation of getting as much as possible out of the land to-day without regard for the morrow. Nor have the efforts made by Government to instruct him been at all successful. The defect in these efforts has consisted in the failure to recognise the fact that in order to improve Indian agriculture it is necessary to be thoroughly acquainted with it and to learn what adaptation is needed to suit modern and more scientific methods and maxims to the Indian staples and climate. In some cases men have been sent out to teach or practice agriculture who were not agriculturists, and too often, when they were beginning to learn the elements of the problem before them, the Government has thrown up the attempt as expensive and a failure.

Improvements retarded by disbelief in their advantage.

5. But while we have stated that poverty is the prevailing cause which impedes the adoption by the agriculturist of such improvements in the system of cultivation as require the expenditure of capital, we must also add that a second prevailing cause is the general disbelief, among those landholders who possess capital, in the financial advantage to be reaped from any change of system. No doubt if it can be shown to their satisfaction that an expenditure of, say, Rs. 20 per acre on higher cultivation and manure will, taking all the risks of the season into consideration, produce a return of Rs. 30, they are intelligent enough to adopt such a method: but this seldom admits of satisfactory proof. The cultivators and landholders, however, do something towards the improvement of their land, but mainly in their own traditional way, which mostly takes the form of sinking wells, planting mango and other fruit trees, making tanks, and reclaiming waste land.

Experimental farms.

6. Many experimental farms have been started in India, but most of them have been abandoned, chiefly on the ground that they did not prove remunerative. Too much perhaps was expected; for experimental farms are rarely profitable, profit not being the object. Experience in other countries has shown that the best models for imitation are farms conducted with a view to profit by men of intelligence and industry at their own risk, whose success, when clearly manifested, rapidly finds imitators. But in a country of small cultivators like India, where the wealthier landowners take little personal interest in the details of improved husbandry, a necessity is laid upon the State to set before the people examples of better practice, both in the art of agriculture and in the breeding and management of live stock. In Upper India, one experimental farm only remains, that of Cawnpur, which is now chiefly occupied in carrying out practical trials of new systems or machines, and, when they are found to succeed, in making them known to the agricultural population. The beginning thus made will no doubt extend into experiments in the growth of crops and the application of manures. In Madras there is an experimental farm, on a very hungry soil, under an English agriculturist, whose papers on the agriculture of that presidency have thrown a useful light on the subject. He has specially noticed the great want of fodder crops, and has shown experimentally that by the aid of a moderate irrigation these may be raised in great abundance and rapid succession, at once affording food for cattle and increasing the supply of manure. He has successfully carried out experiments in crossing the native breeds of sheep in order to increase the production of mutton, and by distributing carefully selected sires through the country has laid a foundation for the improvement of the native stocks. The introduction of Guinea

grass as a rotation crop has been attended with much success. Green fodder is made of the first crop, and it is then grazed two years, this practice being found to clean and refresh the land. Experiments of various kinds are in progress in the growth of different varieties of cotton and other crops; and attached to the farm there is a school where Native students go through a regular course of chemistry, botany, veterinary surgery, and surveying. In Khandesh, in the Bombay Presidency, there is a large Government farm, which is conducted on principles of the same kind, and already confers considerable benefit on the surrounding country, both by improving the breeds of live stock and by the introduction and dissemination of new and useful seeds and plants for cultivation.

Improvements in implements.

7. No great results have been attained as yet in adapting English implements or machinery to the uses of Indian agriculture. Anything which can hope for success must be extremely simple, and such that if any part of it is broken it can be mended by a village blacksmith: it must not be too heavy for the light cattle of the country to work; and its initial expense must not be so large that the interest could not be covered by the profits earned on a small estate. Attention has chiefly been paid to ploughs and water-lifts. By gradual modifications of an English model, ploughs have been made which, while they are more efficient than the ordinary instrument of the country, are nearly as light and cheap. On the Madras farm a water-lift is used which is based on an old and well-known model, and which raises more water in a given time than the ordinary bucket and pulley: but the apparatus is more expensive, and the improvement has not as yet been extensively adopted. A winnowing machine used on the experimental farms in Khandesh and Sindh is spoken of as approved in the neighbourhood. In Behar an improved sugar mill has been adopted which is beginning to be popular with the people, and has many advantages over the mill of the country. It is common for the purchaser to hire it out to different cultivators in turn, or for a whole village to unite together and buy it.

Cattle breeding.

8. Lastly, with regard to the breeding of cattle, in some parts of the country breeds of horned cattle of great excellence are to be met with, but they are chiefly used by the wealthier classes for purposes of light draft, and are seldom employed for agricultural purposes. A superior breed of cattle for military transport is raised by the Madras Government in Mysore, and the surplus stock is eagerly competed for by private buyers; in the Hissar district also, in the Punjab, there is a Government farm on which English bulls are kept, and which supplies cattle of a superior description to all parts of Upper India. Besides these important establishments, many efforts have been made on a smaller scale to introduce a better strain of bulls, rams, and donkeys, but no permanent effect has been produced on the country generally, nor can useful results be hoped for until farmers learn to breed more carefully, and not to allow their cows and sheep to be impregnated by any accidental male they may meet. The studs or Government horse-breeding establishments have almost all been given up on account of their expense, and of the high cost of their produce; and reliance is now placed on the effect of prizes awarded to the most deserving animals exhibited at the horse fairs, stallions being distributed by the Government in the districts where horse-breeding is practised by the people. There are many cattle fairs too held in different parts of the country, and here similar encouragement is often given by local institutions to the owners of the best bred cattle, sheep, &c., but as yet it can hardly be said that such efforts have been systematized, or that any important practical result has been produced, or that much intelligent interest has been shown in the matter by the agricultural population.

Section II.—*The Technical Training and Employment of Officers of the Agricultural Department.*

Importance of increased technical agricultural knowledge

1. We now pass to the consideration of the measures which we recommend for the introduction of better methods of cultivation, and generally for the diffusion and application of a scientific knowledge of agriculture in India, and for the provision of a class of officers in the public service who shall possess such knowledge and be in a position to apply it effectually. On the importance of this knowledge, both to the governing class and the governed, it is unnecessary for us to dilate. Our Report has clearly shown how greatly agriculture preponderates over all other interests and employments in which the people of India are engaged; how essential we think it that technical agricultural knowledge should be called in to enable the productive powers of the soil to be applied in the most effective manner, not merely to add to the

wealth of the country, but to secure a food supply which shall keep pace with the increase of population; and how valuable in all departments of administration would be the acquisition by the executive officials of more accurate knowledge of the statistics of agriculture, of the ordinary out-turn of the harvests, and the relative produce of the crops from year to year. As long ago as 1870 the Government of India began to take steps for establishing a more efficient system of control over the action of the local Governments in relation to all matters connected with the statistics of agriculture and its practical improvement. From time to time repeated injunctions have been issued that increased attention should be paid to these important interests, but very little progress has been made in giving effect to these orders, and only in the North-West Provinces have organised measures been taken in this direction by any of the local Governments. It is our hope that the example thus offered may be followed at an early date elsewhere, and that an Agricultural Department may be established in every province, on the general basis suggested in the former part of our Report, and now further to be explained in detail.

Necessity for an Agricultural Department.

2. To realize the end in view two things appear to us to be required. First, there should be in the country a certain limited number of persons possessing superior technical and scientific knowledge of practical agriculture, whose task it would be to aid the Government in its endeavour to introduce improved methods of cultivation. This they would do by ascertaining the characteristics and capacities of different soils, by indicating the most suitable crops for the various soils and climates of the several provinces, and the most successful way of raising the chief staples and of preparing them for the market, by investigating the effects on the crops of irrigation applied in different ways, and by suggesting improvements in the system of rearing cattle, or in the construction of agricultural implements. Secondly, there is needed a body of public officers with sufficient training in scientific agriculture to see that the special and technical knowledge just spoken of is applied in the best way, to interpret improvements to the people, and to stimulate popular sympathy and interest in the efforts made to introduce them. This body should form a constituent of the executive Civil Service, the members of which necessarily have weight and authority among the people, are brought in contact with them at every turn of official life, and are practically acquainted with the habits and mutual relations of the various classes of the agricultural population.

Two classes of officers required to introduce and popularise improvements.

Special experts, and trained civilians.

3. The Agricultural Department of each province, the creation of which we advocate, would be constituted from these two classes of officers. It would therefore contain a proportion of persons with a high order of technical and scientific attainments, and trained in practical agriculture, agricultural and organic chemistry, and botany; and a larger number of Civil servants, with some knowledge of the science and practice of agriculture, and with the habits of observation which are best acquired by a training in physical science.

The Director to be a trained civilian.

4. For the present, at least, it seems essential that the Director of the Agricultural Department in each province should be a member of the Civil Service. Such an officer, to be fitted to discharge the duties which we have proposed to assign to him, should be trained in revenue law and settlement work, and chosen for his knowledge of the habits, thoughts, economic condition, and agricultural customs of the Natives, qualifications which can only be secured by experience in civil district administration.

Alteration in preliminary examination for the Civil Service.

5. To secure the introduction into the Civil Service of a proportion of officers with a scientific and practical training in agriculture, we recommend that for the future more weight should be given, in the competitive entrance examination, to attainments in the natural and physical sciences. In the special examinations which have to be passed during the course of two years after the competitive examination candidates are allowed to take up botany, geology, and zoology as additional subjects, the compulsory ones being two Indian languages, Indian law, Indian history and geography, and political economy. We think that Indian languages, Indian law, and political economy are subjects the requirements in which might be abridged, and of which some might be made optional, their place being taken by agricultural and organic chemistry and botany.

Subsequent training.

6. After the period of two years' special study, we recommend that a selection should be made from those who have passed most creditably in agricultural chemistry and botany, and those selected should be allowed to spend one year, either at an agricultural college, or under any supervision that may be considered advisable, in the study of practical agriculture. Their studies should be specially directed to such branches of agriculture and such modes of cultivation as are likely to be of practical utility in India: and special encouragement might be given to those who choose this

line of study by allowing this period to count as residence in India, and by granting a proportion (say two thirds) of the salary they would have been earning in India; such concessions being contingent on a proper use of the time, and on ability to pass any test that may be prescribed at the end of it. The general aim should be to secure, as far as is consistent with the conditions of the case, a scientific and practical training analogous to that to be prescribed for the special officers (as explained in para. 10), though less complete.

First employment in India.

7. The Civil servants who have passed this test and gone through this training should, on their arrival in India, serve in the general revenue and magisterial line for two or three years, before they are drafted into the Agricultural Department.

Temporary plan for training Civil Servants.

8. As some years will elapse before civilians trained in this manner become fit for enrolment in the new Department, it will be desirable to adopt temporarily another mode of securing from the Civil Service a supply of such officers; and with this end a few junior civilians now in India should be enabled to qualify at once for these posts. They should be chosen from each province for their special aptitude and inclination for this class of work, as tested by the experience of four or five years' service in India, and be allowed to spend a year, or perhaps a longer period, in Europe, at some school of agriculture, the time counting as residence in India, provided they pass a suitable qualifying examination at its close. The special education thus given should be mainly of a practical character, analogous to that spoken of in para. 6, but inducements might be held out to the young civilians to submit to precisely the same tests and examinations as those prescribed in para. 10. These civilians on their return to India should be posted to districts as officers of the Agricultural Department, with a moderate personal allowance in addition to the pay of their rank, and from among them, when a vacancy occurs, the head of the Department should, by preference, be chosen, if other necessary qualifications were not wanting.

Selection of special experts.

9. The second of the two classes of which the Agricultural Department, when fully organized, will be composed consists of the trained specialists, and the number of these might probably be at the rate of two or three to a province. The class from which they would be selected should, if possible, be that of men who have taken high degrees in the university examinations in physical sciences, and they should be paid on a graded system corresponding to that of the Education Department. They should be selected either by help of a special competitive examination, after which they should be required to go through a training in organic chemistry and agricultural botany, passing a final examination within either one or two years from the date of their first appointment, or in reliance on a suitable university degree, which should give proof of the requisite training having been gone through. In all cases the scientific training should be followed by a year of practical application to agriculture before they are sent out to India.

Proposed qualifications and course of study.

10. The course of study which would be required in the case of special selection by competition, and which might be regarded as equivalent to the course which would have been necessary to obtain a high university degree, might be framed on the following plan :—

1st Year.

Physics, with laboratory work.
Chemistry, with laboratory work.

The physics to be taught from the experimental and not from the mathematical side, the object being not to make physicists of the students, but to give them a clear understanding of ordinary physical processes. The chemistry to have as its chief end the accurate performance of quantitative analysis of soils and vegetable products, and acquisition of a knowledge of the chemistry of plant action.

2nd Year.

Organic chemistry, with especial reference to vegetable products.
The structure and physiology of plants, including a practical knowledge of the chief food plants, and the principles of agriculture, and a knowledge of the basis of a natural classification of plants, but excluding the details of what is ordinarily known as systematic botany.

A properly organized course of instruction, extending over these two years, should put the student in full possession, based on direct observation, of all the scientific principles involved in agricultural processes, and of the methods by which estimates may be formed of the nature of soils, of the value or importance of manures, the conditions of climate, and the produce of crops. The successful candidates, in what-

ever way they are appointed, when they have satisfactorily complied with suitable tests of their scientific acquirements, should, at the cost of the Government, spend one full year on a well-conducted farm or other approved school of practical farming, in the study and practice of the actual processes of agriculture At the conclusion of this, and in order to test his power of using his knowledge, each of them should be sent into some part of this country, or the Continent, which he had not previously visited, to report upon the state of agriculture there in its scientific and practical aspects.

Their employment in India.

11. In each province where canal irrigation is extensively carried on, one of these specially trained officers might be attached to the Irrigation Department, and employed in watching the practical results of irrigation on the agriculture of the country, investigating the effect of canal water on the crops as compared with well water, the causes of the efflorescence of salts, the quantity of water required by different crops, and other kindred subjects. The others should be attached to the Provincial Director of Agriculture. They would at first remain with him for some time, till they had mastered the language and obtained some knowledge of Indian crops and agricultural methods, and of what experiments have been tried and have failed before; they should then be deputed to study the various staples in turn, inspecting the mode of raising them in different districts, and selecting the best and most successful mode, with a view to encouraging its general adoption and leading to further improvements. In this way each of the different main crops, such as sugar-cane, cotton, opium, indigo, rice, wheat, millets, and others, would be taken in hand, and the results would be brought into a shape in which they would be available for the future information of the Department, and constitute a set of practical treatises on which, with extended experience, the results of all subsequent improvements could be engrafted. Similar investigations should be made into the agricultural implements, and the system of cultivation and of rearing cattle, with a view to the wider adoption of good systems, or of the introduction of improved methods. Experimental farms, cautiously conducted under these officers, and supplied with proper laboratories, would also afford the means of testing the value of any suggestions, and demonstrating the success of any approved method. It can hardly be doubted that such farms, carried on with more persistent purpose than at present, will eventually be found to be a necessary adjunct to a successful agricultural administration. When a thoroughly trained staff has been formed and has acquired a certain practical knowledge of the agriculture of the several provinces, of their requirements and deficiencies, and of the climatic conditions under which all operations have to be conducted, experimental farms may be more widely established with reasonable expectation of avoiding the errors which have in the past given rise to a general feeling of distrust in the utility of such institutions.

Agricultural education in country schools.

12. In course of time, the information thus acquired should be brought into a condition in which it could be imparted to the more intelligent pupils in the schools of the country, to whom the practical results of the natural laws which regulate the various operations of agriculture could then be shown, and the rudiments of these sciences could then be brought within their apprehension in a tangible shape.

Estates under the Court of Wards.

13. The estates of minors and other legally incompetent persons, which are under the management of the Court of Wards, have been spoken of as affording a proper field for the introduction of agricultural improvements into the country. The principle which should govern the conduct of Government in respect to these estates should be, in our opinion, that the managers it appoints should not make use of their position to carry on merely experimental farming, but should act as an enlightened but prudent landowner would act in respect to his own property, by utilising the results of science, and adopting any well-tested and clearly demonstrated improvement, either by works for adding to the permanent value of the estate, or by the adoption of improved methods of farming. When, therefore, any improvement in the method of cultivating or preparing any staple crop, or of rearing cattle, or in the construction of implements, has been proved to be successful, it might without objection be introduced to the people and popularised by means of its adoption on such estates, but it would obviously be unjustifiable to make their owners responsible for the cost and risk of carrying out experiments which the Government would not undertake itself. Jail gardens also, to a certain extent, present a field for experimental cultivation, so far as is consistent with the requirements of discipline and with the primary object of such gardens—the production of the vegetables necessary for the health of the prisoners.

Construction of improved implements.

14. For the present we think that the application of engineering or mechanical knowledge to purposes of agricultural improvement can probably be sufficiently secured through some of the large staff of engineers employed either under the

Government or the railway companies, whose services might be specially obtained to consider and advise upon any matter that appears to call for technical skill of this class. The improvement of some of the simpler forms of machines required for the preparation of agricultural produce for the market, such as sugar and oil mills, and machines for the treatment of fibres, would doubtless be of great advantage to the agricultural community, and attention should be given to this point; but the country is as yet quite unprepared for the general use of any agricultural implements except such as are of the simplest character.

Agricultural shows.

15. These suggestions indicate the general direction which we think might best be given to the Agricultural Department in relation to that part of its duties which would deal with the improvement of the existing system of practical husbandry. We should further advise that agricultural meetings and shows on a systematic basis, and of a thoroughly practical character, should form a regular and important part of the operations of the Department. By such means we do not doubt that the more intelligent and enterprising among the landholders would in time be led to take an increasing interest in the improvement of their methods; and under judicious management, and with moderate prizes for excellence, a healthy competition might be excited among the cultivators for the production of superior crops or cattle. It will only be when the cultivators themselves begin to appreciate and practise improvements that any general progress can be expected, and success will most probably be obtained by acting directly on that class.

District officers might be allowed to farm under certain limitations.

16. Suggestions have been made that practical good might often arise from the example of cultivation carried out under the direction of the district officers themselves, and at their own cost, and that such farming should be encouraged rather than prohibited, as it is now believed to be. We are aware that the general question of the holding of land by Government officers has frequently been considered, and that the broad conclusion has been come to that it is not expedient, and should be prohibited, as likely to distract their attention from their official duties and to give rise to irregularities or suspicions of malpractices on the part of themselves, or their servants, or the Native district officers. But while we do not question the prudence of the prohibition against land being held by any European officer as a means of obtaining an income, or in a manner that will be likely to raise questions as to his relations to Government as a payer of revenue, to the tenants whom he would probably displace, and to the agricultural labourers whom he must employ, we yet think that a relaxation might be made to admit of the temporary occupation, under a lease, of a moderate area, say 50 or 100 acres, for farming, subject to any suitable rules or restrictions to guard against abuses, such as those to which we have alluded; and we commend this suggestion to the favourable consideration of the Government.

Section III.—*Government Loans to facilitate Land Improvement.*

Sketch of existing practice.

1. Advances for the improvement of land are now made for the most part under Act XXVI. of 1871. The object of this Act was to define the purposes for which it was held to be legitimate to place a charge on the land, as security for the repayment of advances made by the State, to enable improvements to be carried out, and to give the Government a preferable claim on the land for such repayment. These purposes were defined to be undertakings whose object is the permanent improvement of the productive powers of the land, and such undertakings are of three classes: (1) wells, tanks, or other works for the storage, supply, or distribution of water for agricultural purposes, or the preparation of land for irrigation; (2) works for the drainage of land, for reclaiming land from river or other waters, and for the protection of land from floods or erosion; (3) for reclaiming, clearing, or enclosing lands for agricultural purposes. The provisions of the Act, which has been amended as to procedure by Act XXI. of 1876, are that a landowner, or tenant with his landlord's sanction, should apply for an advance; and that the collector after satisfying himself that the object comes under one of the above three classes, and that the security offered is sufficient, may make the advance, and shall ultimately recover it in the same way as the land revenue is collected. Further details as to the amounts to be lent, the mode of making applications, the mode of inquiring into the security and the object, the interest to be charged, the manner and time of repaying instal-

ments, and the amount of those instalments, are to be provided for by rules drawn up by local governments and sanctioned by the Governor General in Council.

Defects of the system.

2. The evidence we have received regarding the working of this Act renders it unquestionable that it has failed to realise the intention of promoting improvements, and that there is a very general reluctance to make use of its provisions. The sums which have been advanced under the Act are extremely small,* and bear no proportion whatever to the need which the country has of capital to carry out material improvements. This result is alleged to be due to several causes, among which the following are the most prominent:—The obstacles created by inefficient Native subordinates, to whom the granting of such advances gives extra trouble; the delay and expense of the initial procedure, under which the first application has to be stamped, the bond for repayment stamped and registered, and a minute and troublesome inquiry has to be made into the nature of the applicant's tenure and its value; the necessity of paying interest, which is usually fixed at 6¼ per cent. per annum; the small number of years over which repayment may be spread, and the consequent largeness of the annual instalments; the early date at which they begin to fall due, even before the improvement has begun to realise a profit; and the rigidity of the rules for punctual repayment.

Suggested alterations in the Act and Rules.

3. The evidence we have obtained on these points leads us to recommend that the Government of India should cause an inquiry to be made as to how far these complaints are valid, and to what extent they can be met by an alteration in the rules. While all needful precautions are taken to secure the State from loss, every unnecessary impediment should be removed which now makes the people unwilling to apply for such advances. In particular we recommend that the period over which the repayment of the debt can be spread should be considerably enlarged; that a reasonable time should be allowed for the completion of the work before repayment begins; that the rate of interest charged should not exceed what it costs Government to effect its loans; that the annual instalments should be fixed at an amount which would in a prescribed term of years discharge the principal and interest together, so that any separate interest account may be avoided, and which should not exceed at the outside 10 per cent. on the original advance, at which rate it is calculated that the loan, with interest at 5 per cent., would be repaid in 14 years. If, on the other hand, a period of 20 years is allowed for repayment, the annual instalments need not be more than 8 per cent. on the original advance; if 25 years, they might be reduced to 7 per cent.

Advances to be managed by the Agricultural Department.

4. Not only should the way be made easy for landowners to apply for such advances, but they should be encouraged to do so by the advice and influence of the district officers. We suggest therefore the advisability of entrusting this duty to the officer of the Agricultural Department in each district, who should make it his peculiar duty to encourage the landed classes to look to Government rather than to money-lenders for advances of this kind, should advise with them as to the objects on which money can most usefully be laid out, and should supervise the proceedings of the native agency through whom the details of the procedure must ordinarily be carried on.

Advances for objects outside the Act, and in exceptional cases.

5. Besides the advances given for the objects contemplated by this Act, advances of another kind have been and still are made outside the Act, such as loans to help landowners to pay off debts, for the purchase of bullocks or seed grain, and for the construction of embankments and watercourses, loans without interest to some wild tribes, or to facilitate the recovery of the country from famine. It is undoubtedly well that provision should be made for giving assistance in exceptional cases which do not come under this Act, and peculiarly so when the country is recovering from so great a calamity as that of famine. We have already proposed that the making of loans to the landed classes should be a part of the regular system of famine relief, and this measure should be liberally extended and prolonged till the effects of the famine have passed away. There may also be other cases of excep-

---

* The sums disbursed in the last year on record, 1877–8, are as follows:—

	Rs.
Punjab (7 districts only)	180,000
North-Western Provinces	68,543
Bengal	459
Central Provinces	7,515
Bombay	14,957
Madras	156,367

tional calamity, in which relief may properly be given to deserving tenants or landlords by advances of this kind; and it is desirable that the district officers should, under suitable rules, have the power of giving such assistance where the circumstances are personally known. But care should be taken to avoid falling into excess in doing this. There could be no greater encouragement to unthrift and recklessness among the agriculturists than the knowledge that they have no need to accumulate capital to meet any misfortune that may befall them, but that they can always rely on obtaining from the Government the money they require on comparatively easy terms. The landed classes are only too prone to enter into any contract for the future which will relieve them from present pressure, and this tendency would be stimulated if the Government, as a rule, lent money except for the object of a definite and permanent improvement of the land.

Improvements not to be the ground for increased assessments.

6. In addition to the difficulties mentioned in para. 2 of this section as arising out of the working of the rules made under the Act, another reason has been prominently alleged for the disinclination of landowners to spend money, whether their own or borrowed, on the improvement of the land, and that is their doubt whether at the expiration of a term of settlement they will be allowed to enjoy the whole profits of such an improvement, or whether it will form the occasion for an enhancement of their assessment. In the Punjab it is a rule of the revenue system that constructors of new wells should be protected for 20 years from enhancement on account of the irrigation thus provided, and that repairers of old wells and diggers of watercourses should be similarly protected for 10 years. In the North-Western Provinces, Oudh, and the Central Provinces no definite rule appears to have been laid down. In Berar and Madras rules have been issued providing that the assessment on lands on which wells or other improvements have been constructed by the owners or occupants at their own cost shall not be enhanced at a future settlement, except on the ground of a general revision of the district rates. But these rules have not the force of law, and in the Bombay Presidency alone has this understanding been embodied in an Act. We think it important that a precise and permanent understanding should be come to on the subject and ratified by law. The landowner should be guaranteed against any enhancement of his assessment for such a period as shall secure to him such a reasonable return on his investment as will encourage the prosecution of improvements. It appears to be quite possible to draw up a set of rules defining what the period should be for any locality or any class of cases, so that it may be clearly known, without fear of mistake or danger of retractation and change of view, by every landowner or tenant who executes a permanent improvement on the land, whether he is entitled to the entire profits arising from it, or to a part, for ever or for a term of years. We have made a further reference to this subject in the section which treats of wells.

Right of tenants to make improvements to be affirmed.

7. We think also that more distinct legal provision is required to secure that every occupancy tenant may effect in the land he occupies material improvements of the kind contemplated in Act XXVI. of 1871 without requiring him to obtain the sanction of his landlord, and without endangering the security of his tenure. Such a right has nowhere been authoritatively declared by the law, and decisions of the Courts have in some instances negatived, and in others questioned, its existence. Further, every tenant who is ousted by his landlord for failure to pay rent or other causes should obtain compensation for unexhausted improvements. A clause providing for the latter case exists now in the Rent Law of the North-Western Provinces, but does not appear to exist in the Punjab, Oudh, Bengal, or the Central Provinces.

Chapter V.—Public Works to secure Increased Production and Protection against Famine.

Section I.—*General Policy adopted by the Government, and its Financial Results.*

Consideration of the measures hitherto taken by Government.

1. The protection of India against the consequences of drought so immediately depends on the provision of improved means of communication and the extension of irrigation wherever it is practicable with advantage, that it becomes necessary for us to consider what have been the measures hitherto taken by the Government in this direction, how far they have been sufficient, and what more is desirable in the future.

Unnecessary to recapitulate the facts at length.

2. The policy of the Government in relation to the prosecution of public works has been so fully and so recently discussed by high authorities, among which may be specially named the Committee of the House of Commons whose Reports were published in 1878 and 1879, that we do not think it necessary to enter on the subject at any length, and we shall briefly state our own conclusions on those points which appear to us to call for special notice.

General agreement as to prudent extension of railways and canals.

3. There seems to be little difference of opinion as to the general expediency of continuing the construction of railways and irrigation works by means of borrowed capital, subject to the conditions that they shall be judiciously designed and economically executed, that proper precautions are taken not to sanction projects that are likely to be financially unprofitable, and that the general scope of the operations shall be kept within certain limits so as not to press unduly on the resources of the country generally. How far the action of the Government in these respects has up to the present time been marked by prudence will best be determined on a consideration of the objects it had in view, and by a comparison of the results that have already been attained from the works it has authorised with the expenditure they have involved.

Origin of the scheme of Extraordinary Public Works in 1864.

4. In 1864, the Secretary of State, after prolonged correspondence with the Government of India on the necessity for extending irrigation as a protection against famine, definitely accepted the view (1) that the State should itself undertake the construction of irrigation works, discarding the agency of companies which was generally recognized to be unsuitable; and (2) that when the sums available from the surplus revenues were insufficient for this purpose the requisite funds should be obtained by means of borrowing. It was thereon pointed out that the sum which the revenues could supply for such a purpose would probably not exceed 500,000*l.* yearly, while it was estimated that the sum which could be beneficially spent during the next 10 years on the extension of irrigation works was not less than 30 millions, so that it would be necessary to borrow largely in order to carry out the scheme satisfactorily. It was proposed that the accounts of the expenditure on works so constructed should be kept separate from those of works supplied with funds from the ordinary revenues. Though the aim was to protect the country from famine, no scheme was to be taken up which did not promise to be fairly remunerative; and it was calculated, from the data supplied by similar works that the earnings would gradually overtake the expenses, and that before long the whole interest on the borrowed capital would be covered, the charge meanwhile being met from the general revenues. The essential considerations which were held to justify this policy were, that the works would really be worth the sum spent on them, that the financial risk was small, and one which Government was bound to run for the sake of giving the country the best possible protection against drought and famine, while the present charge until the works became remunerative was not likely to be excessive, and would soon cease.

Scheme put into force in 1868.

5. The scheme took a practical shape in 1868–69, when the supply of funds by borrowing for what were then termed Extraordinary Public Works was commenced. The expenditure during the first five years averaged less than 2 millions yearly. In 1870 it was decided that the further extension of railways should as a rule be undertaken directly by the State, instead of as heretofore through the agency of companies, and that the funds required should be supplied, as in the case of the larger irrigation works, by borrowing. After 1871 the expenditure on railways considerably increased, and in 1873–74 and subsequent years the Public Works extraordinary expenditure rose to 3½ millions and upwards, the average for eight years, including 1880–81, being a little more than 4 millions yearly, and the total amount which appears as capital outlay from borrowed funds during the 14 years from 1867–68 to 1880–81 being 41,486,000*l.*

6. In the development of this scheme the Government of India in 1873 drew up a forecast of irrigation and railway expenditure for the years extending from 1872 to 1878. It was considered that the revenues could bear, for a limited period at least, a charge of about 2 millions yearly, for such important objects as the extension of Railways and Irrigation Works, without financial objection or inconvenience, and it was hoped that the growing income would before long reduce the burden below this amount. On canals about 8½ millions of capital were to be spent in the six years, 1872–78. The annual charge resulting from excess of interest over net revenue was calculated to rise from 38,760*l.* to 214,560*l.* On State Railways 3 millions were to be spent annually, resulting in 2,125 miles open in 1877–78, and an annual charge for excess of interest over net earnings of 578,000*l.* in 1877–78. The Guaranteed Railways were at the same time estimated to involve an annual charge for interest for the six years varying from 2,209,000*l.* to 1,397,000*l.* The total annual charge on the revenues arising from all three classes of Public Works was estimated as follows :— Forecast of expenditure

	£
1872–73	2,378,000
1873–74	2,127,000
1874–75	2,019,000
1875–76	1,991,000
1876–77	1,987,000
1877–78	1,990,000

In 1875 this scheme was revised, the amount of capital to be annually borrowed being fixed at 4 millions, viz., 2,700,000*l.* on railways, and 1,300,000*l.* on canals; and the annual net charge on revenue for interest and maintenance in excess of income was reckoned as gradually diminishing from 2,357,000*l.* for 1872 and 1,939,000*l.* for 1879–80.

7. A comparison of the actual results with the forecasts made in 1872 and 1875 shows that the Government of India had not in any degree over-estimated the recuperative power of the works, and that the financial position was throughout far better than had been anticipated. compared with actual results.

Year.	Actual Result.	Estimate of 1873.	Estimate of 1875.
1872–73	Net charge. 2,687,000	2,378,000	—
1873–74	2,124,000	2,127,000	—
1874–75	1,913,000	2,019,000	—
1875–76	1,697,000	1,991,000	—
1876–77	1,161,000	1,987,000	—
1877–78	35,000	1,990,000	—
1878–79	1,600,000	—	1,963,000
1879–80	586,000	—	1,940,000
1880–81 (estimate)	Net receipt. 313,000	—	—

8. In 1876 the great fall in the value of silver, and the consequent large increase to the cost of the remittances to England, together with the heavy burdens which had been created by the famine in Bengal, led the Government to reduce the expenditure on Productive Public Works (as they were then for the first time called), and it was resolved to restrict the outlay in this direction to the amount which it was thought could be borrowed in India without unduly pressing on the market, then estimated at 2 or 2½ millions per annum. Reduction of expenditure in 1876.

9. About the same time, in order to guard more completely against the possible risk of investing borrowed capital in works which would not be remunerative, and which might lead to a permanent charge for interest being thrown on the general revenues, very strict rules were laid down for limiting the outlay of borrowed money to works which could certainly be declared to be remunerative. These orders have recently been reiterated with increased emphasis, and the sum which, under the latest instructions of the Secretary of State, may be raised by loan for expenditure on public works of all descriptions, excepting the East Indian Railway, is 2½ millions yearly. Restrictions as to character of works.

10. Further, it has been ruled that in the case of the irrigation works, the capital funds for which have been partly obtained from borrowed funds and partly from the ordinary revenues, the whole capital outlay shall be treated in the accounts as though Rule as to capital on which interest shall be charged.

it had been borrowed, and interest shall be charged on the whole capital against the income of the works. It was argued that surplus revenue, if it had not been spent on these works would have been applied to discharge debt, and that, therefore, the works were properly liable for interest on the sum spent on them, whether borrowed or not. This ruling has had the effect of making the total sum which appears as Productive Works Capital considerably exceed the amount actually borrowed.

Present position of productive works.

11. In the present year for the first time the public accounts contain a correct statement of the financial results of the class of works now known as "productive," that is, all those carried out with the help of borrowed capital, or under a guarantee of interest. It appears from the estimates of 1880–81 that a surplus of income is expected from these works over all charges, including the whole of the interest on all the capital laid out, whether that capital was specially borrowed or provided from the revenues of past years, or raised under guarantee, and whether the works on which it has been expended are in operation or not. The accounts show that a capital sum of close upon 100 millions sterling has been spent on railways under guarantee, about 25 millions on railways under direct State management, and about 17 millions on irrigation works, in all more than 140 millions; and that the net income obtained in 1879–80 was only 600,000*l.* short of the whole charge for interest and working, or less than one-half per cent. on the capital invested, while for the present year, 1880–81, a surplus of 300,000*l.* is expected after paying all charges. At the same time it must be remembered that a large sum, amounting to several millions, is locked up in works not yet brought into operation, and a still larger sum invested in canals or railways which are only by degrees coming into full work.

Returns from State Railways

12. Up to the close of the present year, leaving aside the recently purchased East Indian Railway and the Frontier Railways not yet in operation, which being constructed mainly for military objects are to be paid for from the revenues of the year and do not appear as Productive Works, there will have been expended on State Railways from borrowed funds 26,533,000*l.* The net earnings from these lines for each year since 1874–5 show a rapid increase resulting from the gradual completion of the lines :—

—	1874–5.	1875–6.	1876–7.	1877–8.	1878–9.	1879–80. [Regular Estimate.]	1880–1. [Estimate.]
	£	£	£	£	£	£	£
Net profit - -	44,982	96,027	92,680	131,884	236,481	364,800	596,000
Net miles open - -	221	485	683	806	1,287	2,014	2,493

Thus, even in their present immature condition, these lines, hardly any of which have been open five years, are earning 2 per cent. on the total capital laid out on them, a result decidedly more favourable than that secured on the guaranteed railways at a corresponding period of their existence.

From State and Guaranteed lines together.

13. And it must not be lost sight of that an important part of the return on the capital invested in these lines appears in increased receipts on the older guaranteed railways, the traffic of which is fed by the branches thus being constructed at the direct cost of the State. For this reason, to obtain a true estimate of the financial results of these undertakings they should be viewed in combination with the guaranteed railways. Taken in this way the net receipts from the whole of the lines in which the Government is concerned amounted in 1878–79 to 5½ millions on a capital of 114½ millions, and the estimate for 1880–81 is 6¼ millions on a capital of 123 millions, the former giving a return a little less, and the latter a little more, than 5 per cent., a result which compares favourably with those obtained in any other country.

From Irrigation works.

14. On the works of irrigation, for which capital and revenue accounts are kept, there have been spent up to the close of the present year :—

	£
Outlay from borrowed funds - - -	12,679,800
„ from surplus revenue - - -	7,619,000
Total - - - -	£20,298,800

The net earnings of irrigation works are as follows :—

—	1874–5.	1875–6.	1876–7.	1877–8.	1878–9.	1879–80. [Regular Estimate.]	1880–1. [Estimate.]
	£	£	£	£	£	£	£
Productive Public Works - -	260,814	218,627	195,362	292,291	358,654	964,600	990,200
Works not classed as productive - -	80,292	101,088	101,807	95,404	127,050	201,200	221,700
Total - -	341,106	319,715	297,169	387,695	485,704	1,165,800	1,211,900

The large increase in the last two years, which show a net return of about 6 per cent. on the whole capital outlay, is mainly due to the exhibition for the first time as canal revenue of such a portion of the land revenue as fairly represents the value of the water where the Revenue assessment is levied in a consolidated rate. The figures are given as they stand in the published accounts, but to show the results correctly an addition of more than 500,000*l.* should be made to the amounts for each of the five earlier years.

15. In the case of the North-Western Provinces, where the accounts have been kept on a more uniform system, the progress of the capital outlay and of the returns on the works that were in operation in 1878–79 establish the same general conclusions. Profits in North-West Provinces.

Year.	Productive Capital Outlay.	Net Profits in excess of Working and Maintenance.	Rate per cent. on Capital	Area Irrigated.
	£	£		Acres.
1872–73 - -	2,979,000	167,000	5·6	941,000
1873–74 - -	3,037,000	200,000	6·6	1,049,000
1874–75 - -	3,836,000	249,000	6·5	1,142,000
1875–76 - -	3,986,000	243,000	6·1	1,188,000
1876–77 - -	4,201,000	258,000	6·1	1,240,000
1877–78 - -	4,347,000	316,000	7·3	1,461,000
1878–79 - -	4,462,000	383,000	8·6	1,737,000

Even if the non-productive capital outlay, amounting to about 1½ millions, on the Lower Ganges Canal, irrigation from which had not commenced in 1878–79, be taken into the account, the net profits will still amount to more than 6 per cent. on the entire capital invested.

16. The financial effect of the public works policy of the Government during the last 12 years is further, and more completely, exhibited in the following figures, which show (1) the net charge for interest on the public debt, excluding the amount borrowed for productive works as defined in par. 12; (2) the net charge for interest on capital and working expenses of all productive public works after setting off the income received from them—under this head are included guaranteed railways, State railways, and irrigation works; (3) the whole ordinary outlay on all other public works :— Financial effect of the whole Government policy as to public works.

Year.	Net Interest on Ordinary Debt. (1.)	Net Charge for Productive Works. (2.)	Total of (1) and (2).	Net Charge Ordinary Public Works. (3.)	Grand Total.
	£	£	£	£	£
1868–69 -	5,383,000	2,011,000	7,394,000	5,751,000	13,145,000
1869–70 -	5,155,000	1,737,000	6,892,000	4,349,000	11,241,000
1870–71 -	5,338,000	2,084,000	7,422,000	3,409,000	10,831,000
1871–72 -	5,386,000	2,012,000	7,398,000	3,399,000	10,797,000
1872–73 -	5,058,000	2,687,000	7,745,000	3,532,000	11,277,000
1873–74 -	4,930,000	2,124,000	7,054,000	3,072,000	10,126,000
1874–75 -	4,305,000	1,913,000	6,218,000	3,392,000	9,610,000
1875–76 -	4,268,000	1,697,000	5,965,000	3,550,000	9,515,000
1876–77 -	4,371,000	1,161,000	5,532,000	3,311,000	8,843,000
1877–78 -	4,500,000	35,000	4,535,000	3,305,000	7,840,000
1878–79 -	4,326,000	1,600,000	5,926,000	4,425,000	10,351,000
1879–80 -	4,121,000	586,000	4,707,000	4,546,000	9,253,000

N.B.—The charge for Ordinary Public Works has been increased in the last two years by including expenditure of local funds not entered before, and for a proper comparison with the earlier years about 1,200,000*l.* should be deducted from the charge for the two last years.

The sudden reduction of charge for Productive Works in 1877–78 is due to the greatly increased railway receipts from the grain traffic during the famine.

General result of policy.

17. It will thus be seen that though during the last seven or eight years the cost of famine has amounted to 14 millions, and of loss by exchange to 12 millions, the net charge for interest on debt other than that incurred for public works, has been materially diminished. At the same time the net outgoings for productive public works, including all interest on guaranteed capital and on the capital borrowed, and all the working and maintenance charges for irrigation works and State railways, after setting off their income, have in the same period decreased by 1½ millions. Further, in the same period there has been no increase to the expenditure on ordinary public works, but a large reduction after 1870.

General conclusion as to past experience.

18. It obviously forms no part of our duty to discuss in detail the precise extent to which this policy might properly be followed in the future, and we fully recognize the many considerations of a general character which must have due weight in forming any decision on so important a financial measure as the expansion of the outlay of borrowed capital on public works. The figures here adduced, however, prove that the Government of India has efficiently controlled the expenditure of the funds of this description, with the result of a steady growth of the public resources and a constant improvement in the condition of the people. We feel assured that there is no present probability of any difficulty arising in obtaining whatever capital is likely to be required for these purposes on reasonable terms, and we trust that with the additional certainty that has been now obtained by actual experience, both of the enormous value of the works and of the possibility of carrying them out without causing any permanent financial charge, the disposition of the Government to pursue the same wise course will not be less strong, and that it will continue to provide the country, within prudent but sufficiently wide limits, with extended railway communications and irrigation works, which are the best, and often the only, means of securing protection from the extreme effects of drought and famine.

And as to course to be pursued in the future.

Section II.—*Irrigation Works.*

The true value of irrigation canals;

1. Among the means that may be adopted for giving India direct protection from famine arising from drought, the first place must unquestionably be assigned to works of irrigation. It has been too much the custom, in discussions as to the policy of constructing such works, to measure their value by their financial success, considered only with reference to the net return to Government on the capital invested in them. The true value of irrigation works is to be judged very differently. First must be reckoned the direct protection afforded by them in years of drought, by the saving of human life, by the avoidance of loss of revenue remitted, and of the outlay incurred in costly measures of relief. But it is not only in years of drought that they are of value. In seasons of average rain-fall they are of great service and a great source of wealth, giving certainty to all agricultural operations, increasing the out-turn per acre of the crops, and enabling more valuable descriptions of crops to be grown. From the Punjab in the north to Tinnevelly at the southern extremity of the peninsula, wherever irrigation is practised, such results are manifest; and we may see rice, sugar-cane, or wheat taking the place of millets or barley, and broad stretches of indigo growing at a season when unwatered lands must lie absolutely unproductive. To show how greatly the wealth and resources of India have been increased by her works of irrigation, the following instances may be quoted from the mass of evidence to the same effect before the Commission.

In the Punjab;

2. The outlay on completed canals in the Punjab up to the close of 1877–78 had been 2,260,000*l.* The total area irrigated by them was 1,324,000 acres. The weight and value of the food grains raised at the high prices ruling during that year of drought on the two principal canals were calculated as follows:—

	Tons.	Value. £
West Jumna Canal - - -	158,000	1,147,000
Bari Doab Canal - - -	141,400	789,000
Total - - -	299,400	1,936,000

The value of other crops grown on these two canals (sugar-cane, cotton, dyes, oils, vegetables, &c.) was estimated at 940,000*l.* It may, without exaggeration, be reckoned that one-half of these crops would have perished if unwatered, or would not have been raised at all if the canals had been absent. So that altogether in that one year the wealth of the Punjab was increased by these two canals by 1,138,000*l.*, an amount equal to about two-thirds of the cost of the works; and be for the protection they afforded Government would have lost heavily from the necessity of remitting revenue and providing for famine relief. The net canal revenue for the year in the Punjab was, however, only 119,000*l.*, being about 5½ per cent. on the capital outlay on works in operation, a result which obviously supplies a wholly inadequate test of their value to the country.

In the North-West Provinces;

3. Up to the end of 1877–78 the capital outlay on completed canals in the North-West Provinces had been 4,346,000*l.* The area irrigated that year was 1,461,000 acres, the value of the crops raised on which was estimated at 6,020,000*l.* Half the irrigated area was occupied by autumn crops, which, but for irrigation, must have been wholly lost; and it may be safely said that the wealth of these provinces was consequently increased by 3,000,000*l.*; so that three-fourths of the entire first cost of the works was thus repaid to the country in that single year. The net revenue to Government from irrigation in these provinces was 315,600*l.*, or about 7¼ per cent. on the whole capital outlay of 5¾ millions, of which 1¼ millions was still unproductive.

In Bengal;

In Behar;

4. The results of irrigation are not so favourable in Bengal and Behar as in the North-West Provinces and Punjab; but here too there is abundant evidence of its value, and the receipts have at length exceeded the working expenses. Up to the end of 1878 the outlay on the Sone canals had been 1,908,000*l.*, of which probably 20 per cent. is due to the elaborate provisions made for navigation. In the drought of 1873–74 these canals were very incomplete, and water was rudely poured over the fields through cuts in the banks. The result was that 159,500 acres of rice were saved, worth not less than 600,000*l.* Were a similar season of drought to occur again a million of acres might be watered, the value of which would approach four millions sterling, or about double the cost of the works. It may still be long before a return is obtained equal to the interest at 4½ per cent. on the 3,110,000*l.* spent, or remaining to be spent, in order to complete the canals of Orissa; but should another famine occur after they are completed, their value would be incalculable. In 1865–66 about a million and a half sterling was spent on famine relief in this province; yet about a million persons perished from starvation, and the province was enriched by no single public work to put against the money spent.

In Orissa;

In the Deccan;

5. From the hilly character of the Deccan, the contracted form and broken surface of the vallies, and the absence of large and constantly flowing rivers, the construction of large irrigation works has been more difficult and more costly in Bombay than in other parts of India; but tank irrigation is common, and some of the works by which the waters of the minor streams are utilized, though on a small scale, are extremely productive, and the value of watered crops is, in ordinary years, not less than four times that of others.

In Sindh;

6. In Sindh we find a large province in which, without irrigation, agriculture and population would be alike impossible, but the province, which with this protection has 1,800,000 acres of cultivated land, has reached a fair condition of prosperity, and gives complete evidence of far greater capacities for progress in the future.

In Madras.

7. The three great deltaic systems of irrigation in Madras, the Godaveri, the Kistna, and the Caveri, yield direct returns of 8·7, 6·5, and 31·7 per cent. respectively on the capital spent on them. During 1876–77, a year when every unirrigated district was importing the food of a large portion of its population, the value of rice produced in the deltas of the Godavari and Kistna is calculated, at the prices then prevailing, to have been not less than 5 millions sterling; the quantity exported by sea from Coconada, the port of the Godavari delta, was valued at 870,000*l.*, while an equal quantity is believed to have been exported by land.

Effect of irrigation on crops,

8. Over the greater part of India sugar-cane and rice can only be grown with the help of artificial irrigation; and even in Midnapur, in Bengal, with an average rainfall of 55 inches, it has been found that the produce of irrigated rice is 40 per cent. in excess of that grown on unirrigated lands.

and on rental.

9. The ordinary rental of land in Northern India is doubled by irrigation, while in 11 districts of Madras the average rental rises from Rs. 1. 4. 0 to Rs. 5. 4. 0 per acre when supplied with water. In Tinnevelly the increase is nearly tenfold. In the

eight years preceding 1875–76, the average selling price of irrigated lands in the Cavari valley in Mysore was 35*l.* per acre. The best dry land at the same time did not fetch above 2*l.* to 2*l.* 10*s.*

The grounds which justify the extension of irrigation.

10. It would indeed be a great error to rest the value of irrigation works on their direct revenue alone. It should be considered rather, whether any particular tract is liable to frequent or serious drought, and whether, in the event of famine the population is such that large outlay would be necessary for its relief, and large loss of revenue would be incurred. If these questions are answered in the affirmative, and if at the same time it is possible to introduce irrigation from a source which can be relied on in years of drought, without any excessive cost, Government might usually embark on the enterprise without hesitation. The certain result will be an increase of the prosperity and of the general well-being and productive power of the population, and the development of every indirect source from which the wealth of the country springs. Looking at the present position of India in respect to irrigation, it would be hard to find any system of works that is not worth to the country the money that has been spent on it; and where the reverse seems to be the case by reason of an unfavourable direct money return on the capital outlay, it will generally be found that it is due to the backwardness of the cultivators in adopting the great change in their customary system of agriculture which necessarily follows on the introduction of irrigation, or to defects of design or errors of management which should not have occurred, and which may be remedied more or less completely. Only where the population is so sparse that use could not be made of irrigation if it were offered, or where the necessary cost of the works would be so exceptionally great that it would be cheaper to accept the likelihood of expenditure on famine relief than to incur the cost of canals, can there be any doubt as to the advantage of irrigation, or as to the expediency of extending it within the limits which the general financial position of the State imposes on its outlay on such undertakings.

Consideration of compulsory water rates.

11. But though these conclusions may, we believe, be confidently accepted, experience has shown that irrigation works may be constructed which are of extreme benefit to the country, and the water of which is eagerly taken for irrigation in time of drought, and yet that the net income they earn may not for a considerable length of time cover the working expenses together with the interest on the original outlay. The works thus cause a charge on the general revenues of the country, and the question arises whether the construction of similar works can be justified, and if so, by whom that charge should be borne, whether by the general body of taxpayers throughout all India, or locally by the province in which the works are constructed, or more locally still, by the owners of the lands through or near which they pass, or which they may benefit.

Causes of financial failure of irrigation works.

12. In considering this question it should be borne in mind that there are two causes of financial ill-success in the case of irrigation works; the one temporary, the other permanent. In the one case the works may fail to pay for a time because of the slowness with which the people adopt a new system of cultivation, a difficulty which arises in almost every new work, or because of errors in the details of the scheme which experience detects and which are gradually remedied. In the other case the failure may be due to the inherent defects of the scheme, and to the fact that the water costs more than it is worth. In the former case there would be reason to expect that the water may eventually be fully utilised, and the deficit be converted into a surplus, though the accumulated excess charges during a series of years may amount to a large sum which the receipts will only gradually wipe out. In the latter case, though there may be room for improvement and economy in the distribution and utilisation of the water, it may be impossible ever to realise a surplus.

Deficits not to be thrown on the general taxpayer.

13. As experience shows that the progress of irrigation from a new canal is invariably slow, for some years at least such a deficit must be anticipated, and it becomes of no little financial importance to consider how it should be met. From whatever causes the deficit may spring, we think that there can now rarely be sufficient reason for leaving it to be met by the general tax fund raised from all India. Such a procedure would be opposed to the principle of provincial responsibility which has been introduced of late years with the happiest results, under which new works of this kind would be started at the request and at the charge of the local governments, whose credit is involved in their efficient and economical completion and management. As long as the cost of failure falls on so large a class as the whole body of taxpayers in the whole of India, there would be a want of that direct interest in the financial success to which we must mainly look for thoroughly efficient and economical management of schemes of this kind. It should therefore only be in the

case of backward provinces, in which the principle of local provincial responsibility has not been carried out, that such a charge should fall on the general revenues of India.

Argument for imposing the charge on the tract which can directly benefit from works.

14. The arguments that have arisen on this subject have extended over many years, and can hardly be said to be yet concluded. The point which has been most discussed, and which may here be noticed, is whether these charges should be imposed on the province as a whole, or on the special tract which the canal traverses. In behalf of the latter system it has been contended that where landowners, who could benefit by the works, ignorantly or obstructively refuse to take advantage of them, the charge which arises from the first cost and maintenance of the works should be borne by them and not by other classes who could not directly derive advantage from the works. The law of Northern India, which recognises in the provision of such advantages, whether made use of or not, a sufficient justification for the enhancement of the rent of a tenant, supplies a strong argument by analogy in favour of this view. Neither can it be questioned that in a country in the condition of India, in which the Government is compelled to assume the responsibility of acting in behalf of the whole community, there must be a presumption in every case that a public work carried out for the general advantage has obtained the tacit approval of the classes for whose convenience it is designed, and that primâ facie those classes should be principally responsible for the cost of the advantage.

Reasons why this course has been rejected.

15. But no doubt many practical difficulties may stand in the way of adopting any such apparently simple rule. It could, for instance, seldom or never be proved that the financial failure of any irrigation scheme was solely due to the neglect of the landholders to make use of real advantages placed at their command. In most cases there will have been some defects in the engineering details of the scheme, or in the revenue management, or other causes may have combined to justify the landowners' unwillingness to take the water till they had full experience of its usefulness.. And, it is further argued, even if it were not so, however much the Government may be satisfied that it would be for the good of the people to use the water, it would be inexpedient to apply actual compulsion to extend irrigation, for if convinced of the advantage to be got they would take the water; and so long as the people were not so convinced, to impose a cess or rate to be paid whether the works were used or not must have the appearance of an injustice, and might make the cultivators still more prejudiced against the canal. Moreover, to make the charge in this manner would require very careful local investigation as to the lands that could certainly take the water to their benefit if the owners chose; and the more carefully it was restricted to cases in which no doubt could exist, the heavier would its incidence be if any considerable sum had to be raised. For these and similar reasons the Secretary of State has held that compulsory rates should not be placed specially on landowners who have water placed at their command from Government works, but who decline to take it.

Reasons for imposing the deficit on the province generally,

16. There can, however, be no doubt that a canal must be a source of security and of protection in all seasons to the districts through which it runs, even if its water is little used in ordinary years, and if the cost of its construction renders the necessary charges disproportionate to the money value of the water at such times; and that, especially in seasons of drought, it will be of inestimable advantage. Experience shows that on the occurrence of a season of drought, water is eagerly demanded, and that a permanent extension of irrigation invariably follows such a season. As we have noticed, the value of the crops rescued by artificial irrigation in a single year may at times exceed the entire capital outlay on the construction of the canal. And it should be remembered how far-reaching are the effects of famine, how all classes are embraced in the calamities that follow in its train, how great a shock it is to the material resources, the credit, the enterprise, and the life of a province. It seems to us, therefore, most reasonable that every province as a whole may be called on to contribute towards the necessary cost of any such works undertaken as an insurance against the occurrence of such a disaster, and that this may be most conveniently arranged by the levy of a moderate rate or cess in addition to the land revenue, graduated however in its local incidence according to the condition of the districts and the advantages they are likely to receive from the works. In an earlier part of our Report (par. 180) we made suggestions in this sense with reference to the extension of railways, and the principle is we think equally applicable to the case of irrigation works, due regard of course being had to the general condition

of the province and the power of the landed class to bear the charge that would be thus placed upon them.

as the only means of extending irrigation where it may not be directly remunerative.

17. Without some provision of this description, serious financial objections might reasonably be taken to the extension of irrigation in many parts of the country, in which, though its advantages would obviously be great as a measure of protection against drought, any early return on the capital outlay could not be anticipated. By placing upon the Local Governments the responsibility of guarding all the interests involved, those which require the provision of the best possible protection against famine, and those which relate to the financial requirements of the Central Government, and to the ability of the people to supply the necessary funds, the obvious difficulties of this problem will, we are satisfied, be best met.

Importance of adopting the principle of provincial financial responsibility.

18. Under the financial arrangements that have been entered into between the Government of India and the Governments of Bengal, the North-Western Provinces, and, we believe, Bombay, the provincial revenues are now liable to bear all charges, both for interest on capital and for maintenance, on account of irrigation works either already constructed or to be constructed in the future. How far it may be possible to extend this system to other provinces, or how far it will be compatible with the construction of new works designed to protect the districts most liable to severe drought, but not likely to be financially profitable at any early period, unless with the aid of additional local cesses, we are not able to say. The whole subject, however, is one which is of vital importance to the future safety of the country, and in our opinion it should receive the careful attention of the Government.

Financial results, up to date, of canals constructed as "Productive Public Works."

19. But although we have thus referred to the possible temporary ill-success of irrigation works in some cases, more particularly in the early stages of their development, we must again repeat that the actual experience of India is altogether opposed to the view that the existing works of this class, taken as a whole, are otherwise than positively remunerative to an extent which completely justifies the measures which the Government of India has carried out for their extension during the last 20 years or more.

As already stated, the capital expenditure on all the irrigation works in British India at the end of the year 1879–80, is stated to have been 20,298,800*l.*, of which 12,679,800*l.* was borrowed, and is classed as productive public works expenditure, and 7,619,000*l.* was provided from current revenue in past years.

The net income of the whole of the works in operation was in the year 1879–80, 1,165,800*l.*, which amounts, within a very small fraction, to 6 per cent. on the whole capital outlay, including about 3¼ millions spent on works not yet brought into operation. If this part of the outlay be excluded the income is found to be more than 7 per cent. on the capital actually utilized. The gross income amounts to 1,687,800*l.*, of which 769,100*l.* is received directly in payment for the use of the water, and 918,700*l.* as additional land revenue due to irrigation. The working expenses are 522,000*l.*

Comparative value of new and old works.

20. There has, we think, been some misconception as to the relative remunerative character of the older irrigation works which had been more or less completely carried out under Native rulers and those which have been constructed by the British Government. In the nature of the case the facilities for executing such works and their necessary cost vary greatly. It naturally happened that the old works undertaken by Native rulers were of the class which offered few engineering difficulties, and cost little, while the works carried out by our Government have been designed to overcome obstacles which would have been wholly beyond the capacity of the engineers of the Native States, and have been costly in proportion. The Cavari works, which provide irrigation for Tanjore, were rendered possible by remarkably favourable physical features such as exist in no other part of India. The ancient inundation canals of Sindh and the Punjab were easy of construction because of the exceptional circumstances of the rivers from which they are supplied. The supply of water from the Jumna, by the canal which is now called the Western Jumna Canal, to the palaces of the King of Delhi at Delhi and Hissar was also rendered possible, from the few difficulties to be overcome; but the irrigation it supplied until re-opened by our engineers was of a limited extent, and a very large sum is now in course of expenditure to remedy original defects in the old alignment, which led to grave evils from obstructing the surface drainage. There is much doubt whether the Eastern Jumna Canal ever carried water at all, owing to certain difficulties which could not be overcome.

Profits from all kinds of works should

21. Viewing the provision of irrigation works as a means of affording an insurance against drought, the Government may, we think, properly regard them as a class of

undertakings which should be treated as a whole, so that any unusual facilities obtained in one direction may be set off against special difficulties in another, and the general financial outcome of the entire class may be accepted as a sufficient test of the policy that should regulate their treatment. Thus considered, and bearing in mind that it has never been the desire of the Government to manage these works with a view to show great profits, the actual results which have been stated appear to us entirely satisfactory, and such as justify their continued prosecution with all suitable precautions to ensure economy of construction.

be considered together.

Suggested extension of Irrigation.

22. There is no room to doubt that it is on direct State action alone that any reliance can be placed for the extension of irrigation. It is hardly conceivable that the intervention of capitalists, solely interested in earning the largest dividend possible, between the agricultural community and the water supply available for irrigation could ever be arranged on satisfactory terms, and the experience obtained from attempts in this direction, to which further reference will be made in the sequel, has convinced all Indian authorities that they should not be renewed. For the present at least the authority of public officers will certainly be required for the protection of the general interests, for regulating the distribution of the water and the management of the works, as well as the provision by the State of the funds required to establish irrigation works on any considerable scale of magnitude. Subject to these preliminary remarks, we proceed to make the following recommendations for the improvement and extension of irrigation in those provinces in which it is mostly needed.

Necessity for State action in extending irrigation.

I.—*The Punjab.*

23. There are in this Province tracts where the construction of canals appears urgently necessary for famine protection; and others, at present lying waste and uncultivated, might be rendered culturable by conveying to them a supply of water, which it would not be difficult to draw from the great rivers of the country.

Tracts which call for canal irrigation.

24. Of the first class may be named the tract lying between the Jumna and Satlej in the Delhi and Hissar Divisions, which at present stands exposed to constant risk of drought, and is, in fact, the locality where in any year of deficient rain-fall distress is soonest and most acutely felt. The average yearly rain-fall does not exceed 13 inches; and as only 10 inches fall in the season of summer rain, it is nearly always insufficient for successful farming; while the sub-soil water lies more than 100 feet below the surface, a depth so great as to preclude well irrigation except for small garden plots. Part of this tract will be protected by the Sirhind Canal when it is opened; but a large portion of it lies beyond the scope either of that or the Western Jumna Canal, and no scheme has been framed for supplying it with irrigation at all seasons. But it has been proposed to enlarge the upper section of the Western Jumna Canal, and to draw from it a branch canal to carry into this district the surplus supply, easily obtainable from the Jumna between June and October. With this it is estimated that 180,000 acres might be irrigated during the kharif, while the lands might be saturated sufficiently to allow of, perhaps, 100,000 acres being ploughed and sown for rabi crops before the river falls to its cold weather level. Such a canal, as we are informed, might be completed in five years for a million sterling, and it has been estimated that in 10 to 15 years after completion a profit of 7 per cent. might be expected from it.

Extension of the West Jumna canal to the Delhi and Hissar Divisions.

25. To the second class belong portions of the Muzaffargarh, Multan, Montgomery, Jhang, Gujranwalla, and Sialkot districts, for the irrigation of which, by perennial or inundation canals from the Chenáb and Satlej, schemes are now in existence or have been suggested. The character of the soil, the depth of the water level, and the insufficient rain-fall are conditions which favour the prospect of remunerative irrigation. Against these must be placed the scarcity of population; but the experience in the Bari Doab justifies the expectation that were canals opened in these districts a sufficient population would not be long in growing up. Here, then, Government has millions of acres one day capable of being drawn upon to feed India. The policy to be pursued with a view to accomplishing this object should, we think, be to extend the inundation canals in these districts by degrees, gradually increasing their scope with the increase of population, but keeping in view their eventual transformation into perennial canals. It is the construction of head works, weirs, aqueducts, and

New canals from Chenab and Satlej in tracts now desert.

locks which makes irrigation so costly; and these should be postponed until an increase of population and cultivation warrant the expenditure which they would involve. For the present, we recommend that every effort be made to open the Sirhind canal, of which the construction seems somewhat unaccountably to have extended over 12 years, and to complete the remodelling of the Western Jumna Canals, which have been under discussion for at least 25 years. When these works are completed, the engineering staff, and the funds now demanded for them, might be applied to the preparation of projects for the irrigation of the waste tracts of the Punjab to which we have referred, and attention should be turned to the irrigation of Sirsa and Hissar.

II.—*North-Western Provinces and Oudh.*

Extension of irrigation in the Doab and Rohilkhand.

26. The Gangetic Doab has already been better protected by irrigation than any equally large tract in India. The completion of the Lower Ganges Canal, of the distributaries of the Upper Ganges Canal, and of the very important drainage works which it has been found necessary to make is all that is required here. Rohilkhand is not as liable to famine as the country on the right bank of the Ganges. It is irrigated to a small extent by canals drawn from the Lower Himalayan ranges, and probably much more cannot be done in this direction, though projects have been drawn out which should continue to receive attention.

The Sardah canal project, though sanctioned and begun in 1872, then set aside.

27. The adjoining fertile province of Oudh is capable of extensive irrigation from the river Sárdah or Gogra; and a complete project was drawn up with this object, and sanctioned and actually started in 1872, but almost immediately arrested and laid aside till the present time. The estimated cost of the Sárdah Canal, which was intended to supply navigation in addition to the irrigation of 2,380,000 acres, was 6,170,000*l*. Its progress was interrupted on account of the opposition of some of the principal landholders.

Importance of irrigation in Oudh.

28. It is not necessary for us to express any opinion as to the action of the Government in this matter, which no doubt appeared at the time to be sufficiently justified; but our later experience completely satisfies us of the great advantage that would have arisen to the whole of Oudh and the North-Western Provinces if this work had not been stopped, and had been, as in such an event it assuredly might have been, in operation in 1877–78. The drought of that year was felt throughout Oudh nearly as severely as in any part of the North-Western Provinces; and it cannot be doubted that the Sárdah Canal would have been as valuable there as the Ganges Canal was in the Doab, and that it would have saved the province of Oudh from a season of extreme distress, and the people from great suffering.

The revised scheme for this canal should, if possible, be carried out.

29. This project has been lately revived on a smaller scale, so as to provide at the outset a canal to irrigate 600,000 acres, and to cost 2,150,000*l*. A return of 5 per cent. may safely be anticipated; and we think the scheme ought not to be any longer rejected unless grave and substantial objections to it can be established.

Precarious condition of Bundelkhand.

30. South of the Jumna lies the province of Bundelkhand. With a scanty and irregular rain-fall, with sub-soil water generally lying at a great depth, this province suffers excessively on any failure of the monsoon. From its geographical position, too, it is difficult of access, and it has been hitherto impracticable to afford it relief from without; and at the approach of drought the people are much in the habit of emigrating for the time to more favoured quarters.

The Betwa and Ken canal projects.

31. A small amount of irrigation is effected in Bundelkhand from artificial tanks, and detailed projects have been prepared for making irrigation canals from the rivers Betwa and Ken. These rivers draw their supply from a drainage area in which there are no considerable mountains, and which is subject to great fluctuations in rain-fall, and during the dry months their volume diminishes almost to nothing; but during the monsoon season, even in dry years, they carry enough to supply a large area of kharif irrigation, and by the assistance of storage reservoirs, enough water could be furnished to raise rabi crops also. The following figures show the scope of these projects:

—	Estimated Cost.	Irrigable Area.	Gross Income.	Working Expenses.
	£	Acres.	£	£
Betwa Canal - - - -	275,000	98,400	19,600	10,000
Ken Canal - - - - -	450,000	88,800	17,700	7,500

The construction of these canals has hitherto been postponed from doubts as to whether within any reasonable period they would prove financially profitable; and now that the provincial revenues in these provinces have been made liable for meeting the interest charge on capital laid out on such works, this difficulty has been assigned a more prominent place than ever. But there is no question as to what their value would be in famine. There is no reason to hope that there will not be a recurrence of famine again in Bundelkhand before many years are past. The people of this province have contributed their share of the public revenues which were applied to render their countrymen secure in the Gangetic Doab, and it is surely not too much to ask that they in turn may receive what protection can be afforded them from the same source. The country as a whole must supply what is needed, and the obligation to assist in this more particularly rests on those who have been already placed beyond danger. Nor can it be forgotten that if this help is not now given by constructing irrigation works, the burden may fall on the Province any day with tenfold force from having to feed Bundelkhand during famine.

Necessi for thei constru to give tection against drought

III.—*Bengal.*

32. In Behar, south of the Ganges, the Sone Canals when completed will afford all the irrigation possible or well nigh necessary. We would, however, call particular attention to the suggestions made by the special Irrigation Committee* for improving the administration of these valuable works.

The So canals.

33. North of the Ganges extensive irrigation is possible from both banks of the Gandak in Tirhut, Champáran, and Sáran. It has been estimated that irrigation might be afforded to 1,100,000 acres in these districts at a cost of 2,200,000*l.* Admitting that irrigation is not the boon here that it is in the North-Western Provinces or Punjab, and that it might be only after a long series of ordinary years that the cultivators would freely avail themselves of water, still it must not be forgotten that it was in these densely populated districts that it was thought necessary to spend on famine relief in 1873–74 a sum far greater than that which would have given permanent protection to the country against drought in the future, and to spend it in a manner that could give no hope of subsequent compensation, such as might reasonably be anticipated from irrigation works, however slowly their advantages were appreciated by the people. The preparation of carefully considered irrigation schemes from the Gandak, which could be taken up at any time if thought desirable, is therefore, in our opinion, expedient.

The Gan canal pro ject.

34. There had been spent on the canals in Orissa up to 1st April 1878, 1,750,000*l.* The works include most expensive weirs, head works, and trunk lines of canal, with every appliance for navigation; but much of the water now runs to waste for want of minor channels to distribute it over the fields. The area actually irrigable in that year was only 183,000 acres, costing thus 9·6*l.* per acre. It appears that (1) by an additional outlay of 93,000*l.* the irrigable area would be raised to 287,000 acres, when the total cost would stand at 6·4*l.* per acre; (2) by a further outlay of 312,000*l.* the irrigable area would be raised to 494,000 acres, costing 4·3*l.* per acre; (3) lastly to complete the scheme of irrigation and navigation canals in the two northern districts of Orissa, the total capital outlay would have to be raised to 3,110,000*l.*, and then 800,000 acres would be irrigable, and the cost would be only 3·9*l.* per acre. Such an increase of area would reduce the burden per acre caused by the first cost of the works to about one-third of its present amount, and would almost in the same proportion add to the net income. So far as these canals have been financially unsuccessful, it has been largely due to administrative mistakes, partly attributable to the peculiar conditions under which the works were originally constructed by a company and subsequently transferred to the Government, and partly arising from erroneous impressions as to the eagerness of the people to take water and their readiness to pay a high rate for it and to incur expenditure in bringing it to their fields. These mistakes have, we hope, so far as practicable, been corrected. But there can be no question that the financial position of the works would be improved, as well as the province greatly benefitted, were the 405,000*l.* spent which is necessary to bring up the irrigation to 494,000 acres. By the time that point is reached it is probable that the situation may be encouraging enough to warrant the completion of the canals. Under the financial arrangements existing between the Government of India and

The Oris canals.

* Irrigation Committee's Report, Supplementary Chapter.

that of Bengal no burden would fall on the general revenues in consequence of any such outlay.

i com-
ication
Cal-

35. We would further direct particular attention to the great importance of coming to an early decision as to the completion of the line of navigable canal between the Hooghly and Cuttack, the communication between Orissa and Bengal being left in a dangerously inadequate condition by reason of the break still existing in the line. The observations of the Irrigation Committee* on this point are deserving of careful consideration, and without offering any opinion as to the relative merits of the possible methods of completing the line, we consider that it ought to be carried out as early as possible in one way or other.

d of im-
ed canal
inistra-
in Ben-

36. In Bengal irrigation in ordinary years is not of such vital importance, or such an immediate and obvious advantage, as in the drier climate of the North-Western Provinces and Punjab. It is all the more necessary to improve the administration so as to make it at the same time thoroughly effective and popular among the people; and this requires a special class of officers with very special qualifications, for it by no means follows that the best constructive engineer is fittest to cope with the objections entertained by an uneducated peasantry to changing their manner of cultivation, or with the difficulties from which those objections to some extent spring. In North-Western India such a class of officers exists, and though it cannot be denied that faults in administration may arise there, the system is constantly watched in detail by the more experienced of the special staff, and as errors or deficiencies are recognised efforts are made to reform them. We cannot doubt that the slow progress of irrigation from the Orissa works has been due to the want of such a staff as this, and to the general absence of experience in all that relates to irrigation among the officers of the Bengal Government before these works were undertaken, and we deem it of much importance that a special class of officers should be allotted to the irrigation works in Bengal, where the tendency has apparently been to overlook the necessity of this.

vigation
als.

37. Larger sums have been spent in Bengal than anywhere else in India on adapting irrigation canals for navigation, and hitherto, except on the Midnapur Canal, without satisfactory results. We would call attention to the remarks of the Irrigation Committee† on this subject, and to the high tolls levied on boats using these canals. These tolls, without reckoning the charge for the boat and boatmen and for the custody of goods in transit, are represented as amounting to nearly one half of the whole cost of boat transport on the Godavari and Ganges Canals, and as having the effect of raising the cost of water carriage to more than double the minimum rate on the East Indian Railway. Experience elsewhere indicates that it is unlikely Government will ever make a direct profit from the mere tollage of boats; and in the absence of any regular transport agency which should undertake the receipt and delivery of goods, it would appear to be better to give every facility for cheap navigation, looking for a return in the prosperity it occasions. Not only in the deltas of the Godavari and Kistna, but on the Ganges Canal, where there have been numerous obstacles in the way of navigation, progress has been more satisfactory than on the Sone and Orissa Canals, and the better results on the Midnapur Canals appear to be due to their close proximity to Calcutta, and to the great demand which exists for the means of transport.

IV.—*Bombay.*

rigation
chemes com-
leted or in
rogress.

38. There is no irrigation work in the Bombay Presidency, excluding Sindh, at all on the scale of those of the Punjab, North-Western Provinces, Bengal, or Madras, and the numerous small projects which have been carried out in the Deccan have not hitherto been attended by encouraging financial results. No perennial supply, such as that of the glacier-fed Himalayan rivers, exists; and the efforts of the Irrigation Engineers have been mainly directed to projects for storing, in reservoirs, the flood-waters of various streams when swollen with the rains of the monsoon, and discharging them gradually through the drier seasons of the year. Up to the close of 1877–78 the outlay on these schemes had been 1,280,000*l.*; this expenditure has been incurred almost entirely within the last 13 years; the first work has been completed for 12 years, and nearly half of the entire outlay has been incurred on a single undertaking in the neighbourhood of Poona, which has been only in partial operation for the last three or four years. It is, therefore, premature to draw any conclusions as to the

---

* Chapter IX., paras. 22–28.
† Chap. IX., paras. 36, 37. Chap. X., paras. 12, 13. Supplementary Chapter, para. 21.

future remunerativeness of the Bombay system; it is as yet in its infancy, and at present it certainly does not pay its working expenses. It is calculated that, putting aside two incomplete schemes, the canals during 1877–78 earned the net sum of 5,380*l.*, or 0·45 per cent. on the capital outlay—an insignificant contribution towards the yearly accruing interest debt of 47,000*l.* Still there is a steady growth in the area under irrigation. In 1873–74 it was only 4,180 acres; this in 1875–76 had increased to over 7,000; the deficient rain-fall of 1876–77 gave irrigation a sudden impulse, and raised the area to nearly 17,000, a total upon which the returns for 1877–78 show a still further advance to 24,500 acres. In 1878–79, a year of favourable rain-fall, the irrigated area fell again, though not to its old level; it amounted to 15,400 acres, or nearly as much as in 1876–77. Moreover, through the steady increase in the more valuable crops, the income from water rate was even larger than in 1877–78.

Causes of slow extension of irrigation.

39. Here we may notice a statement made by the Collector of the Ahmednagar district, referred to by the Secretary of State, that three works constructed by Government in that district with a capacity for watering 41,510 acres, were actually (1874–5) irrigating only 457 acres; and that the cause of failure was that the people were "too "poor, too inextricably involved in debt, and apparently too hopeless of realizing any "independent profit from irrigation, to be willing to prepare their land for the distri-"bution of the water." We find that in the evidence of several of the Bombay revenue officers the indifference of the population of the Deccan to irrigational advantages is attributed to poverty and debt concurrently with many other causes, of which the principal are dislike of novelty, the trouble and expense of levelling their fields, the belief that the crops sown on black soil will not be benefitted by irrigation, the sparseness of population, the defective supply of water on many works in the hot season, and the fear that irrigated land will be assessed at higher rates at the next revision of the land revenue. The spread of irrigation has, doubtless, been retarded by these causes and the unfavourable nature of the country. In the special case, however, above mentioned, the position of affairs has been misunderstood. The works were far from completion in 1874–5, and the utmost area irrigable from them, supposing all the water to be fully utilised is not upwards of 40,000 acres but only 28,200 acres, while the area irrigated in 1877–8 was 3,936 acres. It has been observed generally in India that the extension of irrigation which takes place in time of drought is to a great extent maintained in subsequent years, and it is reasonable to hope that the same may be the case in Bombay. The proportion of land irrigated to land irrigable is not smaller in this district than in other districts of the Deccan in the case of new works which have not yet properly taken root and become established in the country, and the proportion of cultivated area irrigated from wells, tanks, and weirs is above the average. On the other hand, these works illustrate one of the chief difficulties in extending irrigation in the Deccan. Of the total area irrigable by them, water can only be supplied to 19,000 acres during the kharif, and only to 2,300 acres on which crops can be grown that require water all the year round.

Precarious supply of water.

40. Not only in Ahmednagar, but in the case of all the Bombay canals, this important distinction has to be kept in view between those works which draw their supplies from the rivers of the Western Ghâts, and whose summer and autumn supply has been never known to fail, and those which depend on local rain-fall. The canals which belong to the former group have an irrigable area under command of 124,800 acres. It is mortifying to find that of this large area only 19,300 acres received the benefit of irrigation during 1877–78, though the canals showed no symptoms of running short in their supplies. The works which depend on local rain-fall for their supplies, and are therefore liable to fail in the hour of necessity, have an irrigable area under command of 62,000 acres, of which only 5,200 were irrigated. In regard to both these classes it is to be hoped that the reluctance or indifference of the population may be overcome by degrees, and the irrigation utilised to its full extent.

Difficulties in introducing irrigation in the Deccan;

41. In Bombay, as in other provinces where the staple grain crops can be raised in ordinary years without irrigation, the people are slow to be persuaded by any argument less forcible than drought and famine that it is profitable to purchase water for the sake of those crops. What is really necessary to the success of the canal system is that it should displace the cheapest and most easily-grown grains, and replace them by crops which, though more valuable, yet require more outlay of capital and labour,—neither of which the ryots have the means or inclination to apply. A population which is generally poor and in debt is not likely to spend money on novel experiments, or to aspire to a more costly, if more profitable, agriculture. The very slow enlargement of the permanent irrigated area is also no doubt in some measure due to the fact that irrigation as an ordinary part of their agricultural system

is little practised by the people of the Deccan, owing mainly to the peculiarities of the black soil which predominates. In the black soil of the Deccan the peasantry have a general belief, the truth of which is not yet disproved, that irrigation without manure is fatal to the land after the first crop; and as manure on any adequate scale is impossible to get, it remains to be seen how far this difficulty is likely to impede the progress of Bombay irrigation. Garden products or sugar-cane cannot be raised when the supply of water is not perennial; and a perennial supply depends on the construction of storage reservoirs, which are in many cases still wanting to the completion of the works. This condition of things is most unfavourable to the financial success of the works; for this will mainly depend on the area of permanent irrigation, as it is doubtful how far the practice of irrigating inferior crops will be maintained in years of abundant rain-fall, failing which the large volumes of water supplied by the canals in the monsoon months will be allowed to run to waste, and bring in no return whatever.

and prospects in the future.

42. On the whole the Bombay canals must be regarded as a small and moderately hopeful experiment; but at present they are on the debtor's side of the account. They have a capital debt of over one million, an accumulated interest debt of 249,000*l.*, a deficit on working expenses since the outset of 26,900*l.*, the total deficit being over a quarter of a million; and they are not likely, as matters now stand, to overtake these sums for many years to come. Still some portions of the scheme are already doing well; and, though we may not share the sanguine expectations of the Bombay Irrigation Department, it would be premature to say that the outlay has not been judicious. In any case a considerable fraction, more than 200,000 acres, of the most endangered part of the province has been protected from future famine. Irrigation works in the Deccan should, however, be prosecuted with caution if they are to be justified by financial success, though they might in some special cases be constructed without certain prospect of profit, as a protection against famine. Viewed as a means of promoting the growth of more valuable products, it is probable that there is a section of the agricultural class prosperous enough to utilize the limited supply of permanent irrigation; but we are inclined to think that railways are more likely to be immediately profitable to the Deccan by opening markets and creating a demand for produce, and that these should first have attention.

Extension of irrigation in Sindh.

43. As in Sindh there is practically no rain-fall, so there is no possibility of famine from drought. But the condition of the people may be still greatly improved by improving their means of irrigation from the Indus; and, looking at an equally rainless country, Egypt, and to what it has become by irrigation from the Nile, there is a possibility of a great future for Sindh. There are no great engineering difficulties to prevent the abundant waters of the Indus from being spread over Sindh, or to stand in the way of the transformation of the present partial and somewhat precarious system of inundation canals into canals carrying a perennial supply, and capable of giving permanent irrigation on a large scale. The extent of available land and the general climate are believed to be such as to give every reason to anticipate success from such a measure. The result would no doubt be to add vastly to the wealth of the country, and to its power of supporting a large population. But at present that population does not exist; and the problem to be solved here, as in parts of the Punjab, is to derive perennial canals from the Indus on a scale proportioned to the present population, and at the same time capable of extension and expansion without being entirely reconstructed. The problem may not be an easy one, for the necessary cost of permanent head works in a river like the Indus would be apt to swallow up all the revenue likely to accrue from a small canal, while to adapt them for future enlargement might involve still further outlay. We are informed that a project of the character above referred to has been under the consideration of the Government, but was set aside as involving too large an outlay. The general question of adding an available food supply for India which should be beyond the reach of any vicissitude of season, is, in our opinion, of such extreme importance that we do not hesitate to advise the careful reconsideration of this project, with a view, if possible, of bringing it within practicable limits of magnitude and expense, and of taking a first step in the direction of giving to Sindh a permanent system of irrigation in which complete confidence can be placed. The benefits thus to be secured to India as a whole would be extremely great.

V.—*Madras.*

Completion of the three great delta systems.

44. We would call particular attention to the recommendations in Chap. V. of the Irrigation Committee's Report for improving the supply of water in the Madras

Presidency. The first measure is to complete the irrigation systems of the three great deltas. No question can arise as to the great value of these works. In the deltas of the Godavari and Kistna the irrigation works are entirely modern, and in the latter especially much remains to be done for the complete utilisation of the available water. The canals taken off the Cavari were in existence before British rule began in India, and it has cost a comparatively small amount to maintain the old irrigation of Tanjore. The new works constructed have had for their object the more systematic distribution of the water, and the security of the existing irrigation; but little has been done to extend it. The yearly revenue of the irrigated lands of Tanjore is about 360,000*l.* One quarter of this sum, we are assured, if judiciously applied, would largely benefit the works, and lead to the saving of a heavy annual outlay on clearances and repairs.

Other projects recommended.

45. The other projects favourably noticed by the Irrigation Committee* are the proposed Tungabhadra Canal in Bellâry; the Kistnagiri reservoir in Salem; the Periyar project in Madura; the Rushikulya project in Ganjam; and the Sangam project in Nellore. We do not suggest that these should all be put in hand; but they are all of importance for famine protection, and, with the experience of 1877–78, it is matter for consideration whether they should be set aside on the ground that it cannot be proved that in ordinary years they are likely to yield a return of 4½ per cent. It appears that the Sangam project was rejected, although it was admitted that it would yield 4·28 per cent., and because in 1874 Nellore was considered "to be already protected from severe famine." But in Nellore, the famine expenditure of 1877–78 amounted to over 40 lacs of rupees, and it is calculated that there was an excess mortality above the ordinary rate of about 50,000 during the two years of the famine.

Wants of Madura and Bellâry.

46. The two districts of the Madras Presidency where the extension and improvement of irrigation are most pressing are Madura and Bellâry. In Madura there are countless tanks, but generally so shallow, and so uncertain in their supply, that they are of little value in severe drought. In this district there are very extensive zemindâris, and in these the state of the tanks is reported to be as bad as possible. In one, the Ramnâd estate, it is reported that an irrigation channel from the Vaigé river has been allowed to silt-up, occasioning a loss of income of Rs. 40,000.

The Periyâr project in Madura.

47. The Periyâr project alluded to above is designed to supply irrigation to an area of from 90,000 to 160,000 acres in the Madura district. It involves a dam 168 feet high, and a tunnel large enough for a channel discharging 1,600 cubic feet of water per second; and, unfortunately, the proposed site of these works is in a feverish and deserted valley. But to obtain such an area of irrigation in Madura is worth making an effort, and the scheme should not be lost sight of. It is almost essential for the proper protection of this district that by this or some other means the rain-fall on the hill ranges of Madura should be systematically utilised.

The Tungabhadra project in Bellary.

48. The evidence before the Commission goes to prove that the irrigation of one crop of 150,000 acres might be effected in Bellary by a canal from the Tungabhadra aided by an extensive reservoir, for an outlay of 1½ million sterling. Direct financial profit in ordinary years could not be expected from this, nor can we say to what extent the interest on the capital would probably be covered by the income. But had such a canal existed during the late famine it might have fed a million persons for six months; a gain hardly to be overrated in such a district as Bellary, and which would have gone far to make good any loss arising on it in ordinary years. Till, however, the causes of the failure of irrigation from the Madras Company's works in the adjacent district of Karnul are more exactly ascertained and till it is proved that results of the same character would not attend any like project in other neighbouring parts of the country, the Government have excellent reasons for declining to undertake the Tungabhadra Canal.

The Madras Irrigation Company;

49. The Irrigation Committee have reported† at considerable length on the works of the Madras Irrigation Company, and have shown the nature of the difficulties that have arisen in the management of the canal. We have given our best attention to this subject, and can only conclude that the system created under the terms of the contract between the Company and the Secretary of State, under which a divided responsibility was established, the Company's servants managing the works while all dealings with the cultivators were placed in the hands of Government officers, is one which could not possibly succeed; and that although any really satisfactory result can now hardly be expected, the only prospect of obtaining any return whatever from

* Report, Chap. V., paras. 5, 6, 7, 9, 10, 11. † Chap. VIII.

the large outlay which has been incurred on the works is to be found in the complete transfer of the canal to the State on the least onerous terms that the contract will permit. From the nature of the works water is available only for seven months in the year, and the canal flows for much of its course through a country in which the usual food grain grows perfectly well in ordinary years without irrigation. It is now easy to see that in order to introduce irrigation, a complete revolution of the agricultural habits of the country was essential; and there was but little likelihood of this being effected, unless by offering water on tempting terms, giving every assistance to the ryot in the outlay necessary for its reception, and furnishing, by means of navigation, cheap means of transport and access to a profitable mart. No one of these conditions was complied with. It was too readily assumed at the outset that the water would be taken at once, and that it would suffice to entrust the management of the revenues of the canal and the supply of the water to the ordinary district officials, in addition to their regular duties. Applications for water were to be made to the village accountant, who was to open a register and send in monthly reports. The tahsildars and revenue inspectors were to attend to the control and distribution of the water: in no case was any additional pay given for these additional duties. These arrangements were soon found to be unsatisfactory. Mutual recriminations between the officers of the Government and those of the Company soon began; and in 1878, after much discussion, a special inquiry took place, from which it appeared that the practical failure in extending the irrigation was mainly attributable to the absence of good revenue administration; unsatisfactory relations between Government officials and the officers of the Company; and antagonism between the Company and the ryots, arising out of a harassing system of management.

Its unsatisfactory operation,

and causes of failure.

Its assessments and arrangements for distributing water,

50. The methods of receiving applications for water, and of assessing the charges for irrigation, were greatly complained of, and there appears good reason for supposing that the rate for rice irrigation (an initial rate of three rupees per acre increasing annually up to six) was so high as to discourage irrigation. Experience has shown that of the land irrigated half is given up after the first year, and only one-third takes water in the third year. It was obviously unwise that the Karnul Canal, which has still its customers to find, should charge six rupees per acre, when the Kistna and Godavari, where irrigation is popular and well-established, charge only four.

Its establishment charges;

51. The establishment charges have been very high in comparison with what they would have been on a Government work of like nature, and the London Board of Directors and its office have been an additional heavy item of expense. The maintenance of the canal has been reported to be by no means exceptionally good; yet it has, excepting in the years of great drought, cost so much that with the charges for management it has exceeded largely the income from the works, and the difference has been supplied from the Government Treasury.

A transfer to the State the only remedy,

52. There are many obvious ways in which the present charges could be reduced by a transfer of the works to the State, though it is beyond our province to indicate how such a transfer should be effected. We can conceive no possible arrangement under which the Company could carry on its business as an independent body, without Government control or assistance, since its financial position, apart from the guaranteed interest payable on one million of its capital, is extremely unsound, being one of virtual bankruptcy, and, so far as we are able to judge, must necessarily so continue as long as the present contract subsists. The release of the Government from the complications that arise out of the existing contract would enable it to devote itself to rendering the water supply as completely and speedily useful as possible, and would offer some prospect of an improved financial position.

Administration of irrigation works in Madras generally.

53. Whatever be the prospective value of the extensions of irrigation of which we have spoken, it is even of greater importance to the interests of irrigation in Madras that the administration of the existing works of all descriptions should be improved. While elsewhere in India irrigation had either to be created or resuscitated, here it was in active operation when the British rule began; yet in spite of all that has been effected by the conspicuous ability of many Madras officers, among whom Sir Arthur Cotton may be specially named, the subject has not, in our opinion, been treated in this presidency in the manner that its extreme importance certainly demands. The general system remains almost as it was handed down to us from our predecessors in the government of Southern India, and in the public accounts of the present year, for the first time, has the portion of the revenue dependent on the irrigation works been distinctly shown. It would, we think, serve no useful purpose to endeavour to explain how this has arisen, or to inquire how far it may have been the consequence of financial restrictions imposed by the Government of India, or how far other

influences may have conduced to it. The important point is that where defects now exist they should be indicated, and as far as possible remedied.

Imperfection of the accounts and statistics.

54. We are well aware that the great value of irrigation has been long and fully recognized at Madras, though sufficient attention has not been paid to the most complete possible utilization of the limited available water supply as a means of protecting the country against drought. The accounts of the older works till recently only showed a consolidated payment for land revenue and water rate, according to the ancient practice, without distinguishing how much was due to the water; the accounts of the expenditure on maintenance and management were imperfect, and all the statistics of irrigation have been, and are still, incomplete. The areas of the various crops watered year by year by the several tanks and canals are not shown in sufficient detail. There are no correct registers kept to show whether the water is used with economy, or what is the relation between the supply and the irrigated area; and there is good reason to conclude that in many cases great waste goes on unchecked, and that a far better use could be made of the supply actually available.

Want of a special irrigation branch.

55. There is in Madras, besides the chief engineer for the ordinary branches of Public Works, a chief engineer for irrigation, but neither of these has under his orders any separate staff of officers, nor is there a special irrigation department as elsewhere, and with few exceptions the executive engineer serves two masters. Where the irrigation is effected by a number of small tanks spread over the country, it might be too expensive to maintain a separate staff of irrigation officers (although it is done in Bombay), but in the delta canals and the larger systems of tanks there certainly ought to be officers specially appointed to attend to irrigation. On these officers should be placed the whole professional responsibility of the water distribution, the duty of seeing that the available supply is used as economically, and the irrigation extended as widely, as possible, as well as the maintenance of the canals. At present, should the water supply fail, remission of revenue may be granted by the collector, without any inquiry being made of the engineer why the water failed; or if it runs to waste, why it is not utilized. The engineer, it is true, sees that the irrigation channels are kept open and supplied with water, but it is no concern of his what becomes of the water. The revenue officer, for all practical purposes, treats the supply as if it fell directly from heaven, and as if there was no more possibility of ensuring it from failure than there is of ensuring the rain-fall.

Unsatisfactory state of minor irrigation works.

56. Much of the irrigation of the Madras Presidency is effected by means of petty irrigation works, tanks, and channels or watercourses fed from tanks, and the account given of the condition of these is by no means satisfactory. In former days they were to a great extent maintained by a system of contributed or statutory labour, the Government being held liable only for any considerable work of improvement or restoration, and the ordinary petty yearly repairs being done by the population interested in the irrigation. In 1856–57 the duty of initiating tank repairs was transferred from the revenue officials to the reorganised Public Works Department, without, however, the power which had been enjoyed by the collector, of enforcing statutory labour. Since that time the ryots have taken less and less part in the maintenance and repair of tanks and channels. On the other hand, the Public Works Department, though spending considerable sums annually in the repair of particular works, have not been able to carry out all the necessary restorations; and there are many works which have fallen out of order for want of proper supervision and timely repair.

Tank maintenance.

57. The necessity for some change in the administration cannot be doubted. There is a general consent that the measures now adopted for the maintenance of the tanks in efficiency are wholly inadequate. Proper waste weirs for discharging surplus water do not, in many instances, exist. Even in years of by no means excessive rain-fall, breaches occur in large numbers, to the great detriment alike of the agricultural community and the Government. The expenditure has been more liberal of late years; but still the Irrigation Department reckon that, in order to make the more important tanks safe in years of ample rain-fall, an annual grant three times as great as that hitherto appropriated for this purpose, and a period of 20 years, would be necessary. Such a delay in effecting a necessary improvement would be very bad economy. The security of the annual revenue of 700,000*l*., which is dependent on these works, is a matter which the Government cannot be justified in overlooking; and any loss which Government sustains corresponds to far more serious damage inflicted on the agricultural class. The Government ought then, in our opinion, to frame a scheme for putting the tanks into order with as little delay as financial considerations and the arrangements of the administration will permit, and carry it out in a systematic and continuous method till this serious cause of preventible loss has

Need of a scheme of tank repair.

been removed. The Irrigation Committee assign* what appear to us conclusive reasons for thinking that nothing practical can be done towards rendering tanks capable of holding two years supply, which suggestion was referred for our consideration. As the area of a tank is often as large as the land it serves, a great additional space of cultivated land would have to be taken up, and a correspondingly extended surface of shallow water would commonly be exposed to evaporation. They are of opinion that expenditure might more profitably be applied in other directions, and that available means should in preference be devoted to more urgent and certainly useful works of improvement.

Revival of custom of contributory labour.

58. The question of reviving the custom of statute labour, and imposing on the ryots the obligation of doing the ordinary work necessary to maintain their tanks and channels in proper order, has been carefully examined, and its desirability is enforced by a large number of local authorities; and we feel no hesitation in recommending that this reform be at once carried out. In the actual circumstances such a revival would be less burthensome to the people and more effectual than any other system under which the necessary work could be done. If in any case the change were found to throw on the cultivators a burden which was inconsistent with ancient custom, or with the demands which can be equitably made on them under existing assessments, a suitable compensation must be granted; but we apprehend that this would rarely be the case.

Suggested proposal for management of tanks.

59. We generally agree with the proposals of the Irrigation Committee† on this subject. They consider that the larger works only should remain under the Public Works Department, and that the minor works should be maintained under a system of village statute labour controlled by suitable inspection. Tanks irrigating over 50 acres, if found to require repairs, should be brought up to the necessary standard by the Public Works officers at the cost of the Government, and then handed over to the village officials to be maintained. Those irrigating less than 50 acres should be handed over to village officers, the Department of Public Works doing only masonry work; and a reduction of the assessment on the irrigated lands being made in respect of any extraordinary labour which the people had to contribute. The smallest class of tanks, irrigating less than 10 acres, might be handed over entirely to the ryots, who should be assessed as though irrigation did not exist, and left to maintain the tanks or not as they pleased; unless it should appear likely that any considerable loss of revenue would arise from such arrangement, in which case the limit might be drawn somewhat lower, or so as to exclude only the comparatively unproductive works. Inspectors should be appointed, whose duty it should be to report annually to the collector on every tank, besides special reports when necessary. On these reports any needful action would be taken to enforce the obligation to do all necessary repairs.

Irrigation Act wanted for Madras.

60. There is a general agreement that great inconvenience is occasioned by the absence of any Irrigation Law for Madras. Act VII. of 1865 empowers the Government to levy a water rate, in addition to the land revenue, wherever water is supplied for irrigation. But, with this exception, no special provision is made by law for the grant of sufficient powers to carry out the various administrative arrangements which the introduction of canal irrigation necessarily involves; and there are, in our opinion, several particulars as to which the absence of express enactment has produced evils of a very serious nature.

No means of enforcing zemindar's obligation to maintain tanks.

61. In the first place, there are at present no means of enforcing on zemindars the obligation of maintaining their tanks and other irrigation works in proper efficiency, or even of contributing their share of expenses incurred by Government in the improvement of irrigation works by which their estates are benefitted. As an instance of this, the case of the Jaghirdar of Arni, the holder of a large zemindari estate, may be mentioned, part of whose land has received considerable benefit from a series of tanks constructed in North Arcot, but who declines, and cannot, as the law stands, be compelled, to contribute to the outlay involved.

Origin of the obligation.

62. The obligation on the part of the zemindars to keep their tanks in repair is strengthened by the consideration that the land forming the bed of the tank was excluded from consideration when the permanent assessment was fixed. The object of this exemption has been, unfortunately, lost sight of, and the zemindar often puts the tank bed to what purposes he pleases, and ignores his obligation to maintain it as a means of irrigation.

Suggested mode of enforcing it.

Every zemindar should, we think, be bound to keep every tank on his estate in complete repair, under rules similar to those that are made applicable to tanks on Government lands. If he fails to do so, the Government should

---

* Report, Chap. V., para. 14.

† Report, Chap. IV., and App. A.

do it, the outlay thus incurred being made a first charge on the land along with the revenue.

Full payment for irrigation to be demanded from zemindars.

63. An abuse, which requires correction, has arisen by which the zemindars benefit at the cost of the State. Lands which, on the introduction of canal irrigation, were in the enjoyment of any means of irrigation, however inferior and precarious, are now supplied with canal water without any additional charge. The consequence is, that a zemindar gets a continuous and unlimited supply for the whole of the area which, under the most favourable circumstances, he had ever brought under irrigation. There seems no reason why this benefit should be gratuitously conferred. In those cases in which the supply is enlarged or otherwise improved, a corresponding payment should be enforced, and any difficulty in doing this should be removed at once by proper legislation.

Other cases in which duty of repairing tanks should be enforced.

64. Where persons hold land rent free on condition of keeping certain tanks in good repair, the duty is seldom properly performed, and the tanks accordingly are a constant menace to the tanks below, and often, by breaching, cause the Government tanks to breach also. Power should be taken either to carry out the necessary repairs, charging the responsible person with the cost, or to buy up his right at a fair price.

No means of punishing canal offences.

65. There is great difficulty in dealing, under the general criminal law, with various offences which interfere materially with the proper management of a canal. Stopping up other people's channels, improperly opening one's own, tampering with banks, &c., are acts of this nature. The Irrigation Acts of other provinces provide for such cases, and a corresponding enactment is very necessary to secure effective canal administration in Madras.

General summing up as to irrigation policy in Madras.

66. In short we consider that in the Madras Presidency the subject of irrigation requires a more comprehensive and systematic treatment than it has ever yet experienced. We have little doubt that it cannot be put on a satisfactory basis without increased expenditure, and the abandonment of many time-honoured practices and traditions. But without a policy of vigour, as well as of judgment, irrigation in Madras will not be brought into a condition in which it will supply to the country all those extremely great advantages it can confer, or afford the full protection against famine which can be obtained from it, and which in our judgment the British Government is bound to secure for the people.

Cause of slow extension of irrigation in upland districts.

67. The Secretary of State has inquired whether, in any of the districts of Madras, the efficacy of irrigation works which have been constructed by Government has been materially hindered by causes dependent on the character of the tenure. The Madras districts in which irrigation has not prospered are Bellary, Karnul, and Cuddapah. In their natural features they resemble the districts of the Bombay Deccan, and the same causes (see para. 39 to 41), have deterred the people from utilizing canal water. The population is sparse and poor; the crop raised is chiefly jowari, which produces plentifully under the ordinary rains, on the black soil, which is general. The people are unused to cultivate rice, and slow to incur the expense attending it. They therefore grudge the cost of artificial irrigation from the Madras Irrigation Company's canal, except under the compulsion of drought. In the late famine the area of millet irrigated rose from 1,020 acres in 1875–6 to 66,901 acres in 1876–7, and most of this increase was maintained in 1877–8, but it fell again in the more favorable season of 1878–9 to nearly its old level. The prospect of extending irrigation would be more favourable if a perennial supply of water were assured, but at present the supply in the canal is certain for only seven months of the year, and the cost of constructing a storage reservoir would be great. To these unavoidable obstacles to the success of the Karnul canal must be added faulty administration, which has made the work unpopular among the cultivators, as has been already more fully explained.

VI.—*Mysore.*

A comprehensive tank restoration scheme framed in 1873.

68. In Mysore of late years irrigation has received very full consideration, and at the outbreak of the famine the improvement of the works on which the irrigation of the province depends was being effected in a systematic way. The upland plateau of Mysore from its nature contains no very extended drainage basin, nor great plains such as are met with in other parts of India. Its surface is a succession of hill and valley; and the ingenious method in which each valley was made to contain a chain of irrigation tanks, and each river to feed a series of irrigation channels, left the British officers who administered the province little to do but to put the old works in thorough repair. The long economical rule of Sir Mark Cubbon left an overflowing

treasury; and, after much discussion, in 1873 the accumulated funds were ordered to be applied to the systematic restoration of the irrigation works. Unfortunately too much was attempted. On the Mysore registers there are nearly 40,000 tanks, of which 28,000 yield a net revenue of less than 50 rupees apiece. It was proposed to restore all, even the smallest, on the theory that if the smaller tanks at the upper ends of the valleys were neglected, a sudden flood might sweep them away, one after another, and so endanger the larger reservoirs situated further down.

But found to be impracticable.

69. Experience has proved such a restoration as this to be quite impracticable. Up to 1878 only some of the tanks in two of the eight districts of the province had been restored; and in Kolar, the district in which most had been done, it was estimated that to complete the whole district would cost 700,000*l.* and occupy 30 years. Mysore has now exhausted its resources in its struggles with the late famine, and the expenditure for the future must be controlled most carefully. It would be an unwise policy, however, to neglect works on which the very life of the province depends. It will soon revert to Native rule, and before that time arrives a project should, if possible, be drawn up, specifying what tanks are to be restored at the expense of the State, with an estimate of the cost, and the order in which they are to be taken up.

Proposal for tank maintenance in the future.

70. We consider that only those tanks should be thus dealt with which yield a revenue exceeding Rs. 500 per annum, which receive water from a catchment of not less than 20 square miles, or which, from their position in a chain of tanks, or with regard to a town, road, or railway, it is desirable to place beyond all reasonable danger of disaster; so that, even in the event of an exceptionally heavy flood breaching tank after tank in the valley above them, they should be strong enough to resist the accumulated mass of water. These tanks once restored should be maintained for ever after at the expense of the State, a higher rate of assessment being placed on the lands irrigated by them than on others, adapted to the greater security they would afford to the cultivator. It should be made incumbent on the ryots themselves to restore and keep in repair all other tanks in the province, somewhat on the system which we have advocated for Madras. This duty is quite in accord with native usage. After fifty years of British rule the custom has fallen into disuse, but the sooner it is revived the better. The *patel* (or village headman) should be made responsible for the maintenance of the village tank, and ryots refusing to perform their share of the necessary repairs should be liable to penalties. The larger irrigation channels should be treated as the larger tanks; the smaller ones might be maintained by the ryots irrigating from them.

Importance of the subject from a famine point of view.

71. We have no knowledge of the relations which are to exist between the British Government and the future Native State of Mysore. But, with the evidence before us of the terrible misery wrought by the recent famine, we would urge in the strongest manner possible that some practical system be devised to ensure the efficient maintenance of the works of irrigation, and that, if possible, it should be placed beyond the risk of being subverted, however weak might be the Government, or capricious the ruler.

Independent States.

Irrigation in Native States.

72. We have no accurate detailed information regarding the condition of irrigation in the States of India under Native rule. In Jaipur and Bhawalpur much has been done of great utility. The protected Sikh States of the Cis-Sutlej territory, Patiála, Nábha and others, have combined with our own Government for the construction of the Sirhind canal from the Satlej, and provide about one-third of the cost, receiving a corresponding share of the water. We believe also that in Hyderabad the subject receives some attention. But we cannot suppose that anywhere it is dealt with in the systematic way in which it is treated by our Government.

Its importance for the sake both of their own subjects and of British territories.

73. We have made some recommendations regarding the irrigation of Mysore, and we think it highly desirable that whatever is possible should be done to ensure that the subject is not neglected by the rulers of other Native States. If we consider the great extent and population of these States it will be apparent that they could not suffer from severe famine without materially affecting the neighbouring British territory with which they are conterminous. It is certain, moreover, that great moral pressure would be brought to bear on our Government to relieve severe distress in Native States, and that the grant of some financial aid to them may very probably become necessary in extreme cases. On the other hand, to whatever extent, either through more favourable seasons or from the protection given by irrigation works, they may be able to assist British territories suffering from drought, an

important advantage would be secured to our own subjects. On all accounts, therefore, the state of their irrigation works must be of interest to our Government, and it is expedient to adopt every available means to see that due attention is bestowed on them.

74. It has been the practice of the British Government from time to time to lend officers to Native rulers to superintend public works, but we are not aware that influence has ever been exercised to ensure the maintenance of their canals and tanks. In some few States English engineers are permanently employed. We would suggest that accurate information should be obtained from all Native States as to the condition of their irrigation works, the reliance that may be placed on them in famine, and the possibility of their extension; and that the subject should be pressed on their rulers with such insistance as its importance demands, due regard in all cases being had to the measure of their political independence. Suggested measures.

Navigation Canals.

75. At page 100 of this part of our Report we described briefly the lines of internal water communication most in use at the present time. From this it will be gathered that the value of the existing navigable canals is of a somewhat secondary order, and that no very important traffic has been established on them, other than of a purely local character, far the largest part of this class of traffic being carried on upon the rivers, and little having yet been done to provide artificial lines of navigation. This is doubtless due to the natural difficulties to be overcome in securing a permanent water supply, and in constructing and maintaining canals along the great lines of internal trade. Present small extent of navigable canals,

76. Efforts have been made to adapt the larger irrigation canals to navigation, but, except in the Godáveri and Kistna deltas and in Midnapur, without giving very successful results. In Northern India various difficulties have arisen. The lines of canal having been designed for irrigation avoided the towns, and are ill-placed for purposes of ordinary traffic; the current necessary to feed the extended lines of irrigation is inconvenient for the up traffic; the fluctuating level of the water arising from the demands for irrigation is a further cause of difficulty; and till the present time no system of agency has been established to manage the receipt and delivery of goods, so that boats have to be hired or bought, and special arrangements made for transport between the canal bank and the places from and to which the goods are despatched. The attention of the local engineers is still directed to the removal of such obstacles as they can deal with, and projects have been made for taking branch lines of navigation to the larger marts, but a further application of ingenuity and enterprise is still required to give the country the advantage of the very cheap means of conveyance which is commonly secured by water communication. combined with irrigation. The difficulties of this combination.

77. The new canals, the Sirhind, the Ganges and the Agra Canals, will shortly supply a connected line of navigation from the Satlej to the Jumna at Delhi and Agra, and to Cawnpur on the Ganges, and its utilization in a practical and efficient manner is an object of much importance to which attention should continue to be given. Navigable line under construction between Satlej and Ganges.

78. We think that no general rule can be laid down for deciding whether irrigation canals hereafter to be constructed should be made navigable or not. Each case must be dealt with on its own merits, but before going to the expense of works for navigation it should certainly be considered whether it may not be prudent to allow the irrigation first to establish itself on a firm basis before locking up the additional capital required, which will always be considerable. Where the general facilities for communication are great the progress of irrigation will not be materially impeded by the absence of water carriage, though in the end this cheap means of transport for surplus agricultural produce may be very desirable. General rule for combining navigation with irrigation not possible.

79. We would not discourage the application of engineering science and ingenuity to the extension of lines of navigation apart from works of irrigation, but we are not sanguine that success is likely to be obtained in this direction. The conditions of the climate, the liability to great heat and drought for many months in succession, and to sudden extremely heavy falls of rain, and the rapid and luxuriant growth of vegetation, place serious obstacles in the way of securing the water supply in a canal, and of maintaining the works across a country intersected by drainage channels, and of keeping the bed free from obstructions to navigation. If, as is now known to be the case, an efficient railway may be constructed for 4,000*l.* or 5,000*l.* per mile, the Navigation apart from irrigation.

relative advantage of a canal in respect of first cost is much reduced. That there may, however, be localities in which a canal will be preferable may be conceded, and what has to be sought is the judicious combination of the most suitable appliances, and not the dogmatic adoption or rejection of one to the exclusion of all others.

SECTION III.—*Wells.*

Importance of wells.

1. There are large portions of the country to which, from various causes, it is physically impossible that irrigation should ever be given by canals, and in these protection against drought must depend, apart from rain-fall, on tank or well irrigation. In many localities the irrigation supplied by canals requires to be supplemented at certain seasons by wells, and in some cases the character of the crops and the soil is such that wells are, on the whole, preferable as a source of water supply to canals. Many hundreds of thousands of acres in every province are now under well cultivation, and the question of how a more general construction of wells may be carried out with State aid as a means of protecting the country from famine, and of the degree of protection which is thus attainable, has on various occasions been a subject of discussion.

Conclusions to be drawn from the investigation in the North-Western Provinces.

2. The Government of the North-Western Provinces has shown a keen and laudable interest in the solution of this important question, and an elaborate investigation has been recently instituted with a view to ascertain the localities in which, the classes to whom, and the conditions under which, State assistance in the construction of wells might most advantageously be given. The evidence collected in the course of this inquiry has, in our opinion, satisfactorily established the following conclusions:—

(1.) That there are numerous localities in which wells might profitably be made, but in which their construction has hitherto been prevented by the absence of capital, or by circumstances connected with the conflicting interests of co-proprietors and the unsatisfactory relations of the tenants and landlords.

(2.) That in such cases the only way in which it is likely that wells will be constructed is by some systematic action of the Government which may either supply capital, or overcome the difficulties which stand in the way of mutual co-operation.

(3.) That, with a view to obtaining necessary information as to the manner in which such State aid could most advantageously be given, it is desirable that the Government of each province should make a practical experiment to clear up all the uncertainties which at present beset the subject, and to throw light on the numerous and intricate conditions, both above the ground and under the ground, on which well-irrigation depends.

Experiments in two selected tracts.

3. The Government of the North-Western Provinces has proposed to carry out these experiments by selecting two tracts of country in which there are *primâ facie* reasons for believing that wells could be constructed at a reasonable cost with advantage to the agricultural community; and by appointing a special officer to make a thorough examination of each, and to decide for each village whether wells could be advantageously constructed, the cultivators being furnished with the necessary engineering assistance in case their construction is resolved on. Where the people are ready to construct wells with advances under the existing Land Improvement Act, this assistance will be given; in other cases it is proposed that, with the consent of the persons concerned the well should be constructed by Government officers, a rate being charged on lands to be irrigated by the new wells. The conditions on a knowledge of which the action of the Government would be based are generally as follows:—The depth at which the water will be reached; the abundance of the supply; the condition of the strata to be penetrated or in which the water lies; the character of the water itself; the cost and supply of material and labour in each locality; the size of well most adapted to the place; the nature of the soil to be irrigated; the kind of crops which can be raised; the distance which water has to be taken from the well; the extent to which irrigation is already available in the neighbourhood; the class of cultivators by whom the well will be utilized; the relations, amicable or other, which they bear to each other and to their landlords; the relations which exist between the proprietors; the difficulties in the way of adjusting rents on lands newly irrigated; the extent to which rents can be raised, and the ratio which the increase of income thus obtained will bear to the capital laid out on the well. All these are matters which ought to be considered before well-construction on

an extensive scale could be undertaken by the State without risk of mistake, waste, and loss.

Similar experiments desirable elsewhere.

4. There is reason to believe that there is no province in India in some part of which great advantage might not be expected from well-construction on an extensive scale. The management of the inquiry and the supervision of any operations in which it resulted would naturally vest in the Agricultural Department of the province, acting in co-operation with the Irrigation officers. The possibility of well-construction being remunerative in any particular case might be calculated with the same exactness and consideration of local circumstances as in the case of a new project for a canal, and the Irrigation Department possesses exceptional qualifications for dealing with such a subject in an effective manner.

State interference should be conditional on the consent of the landholder.

5. The question of how far the State could properly intervene directly in the construction of wells in the case of the landholders declining to take advances, or not assenting to the charge for the construction being placed on the land, is one not easily answered. But, notwithstanding the arguments that have been adduced by some experienced officers in the opposite sense, we are not able to satisfy ourselves either that the Government could safely or equitably insist upon the construction of a well on any land at the cost or risk of the owner of that land or its occupier for the time being, or that it would be practicable for the Government under any system which provided for the first construction of wells at its cost, also to undertake their maintenance for all time. Assistance might properly be given by the loan of dredging tools, or of boring tools in countries where rock is likely to be met with; it might also take the form of loans of money, or both loans and supervision. Provision might also be made for meeting all difficulties dependent on complications of tenure or differences of opinion among interested parties, the law being so amended as to provide that where co-proprietors whose land will be benefitted by the construction of a well cannot agree, the wish of the majority should override the dissent of the minority. It might also be possible to stimulate well-construction by extending the practice of Bombay and Madras to Upper India so far as to rule that the assessment of land irrigated from a permanent well should not be liable to enhancement on account of the well at any revision of the Settlement, provided the well is kept in efficient repair. But whatever plan be adopted to facilitate well-construction, we can hardly doubt that in some way the landholder must discharge the cost of first construction, with interest thereon, in a term of years, and thereafter become the sole owner of the well, and be placed in respect to it in exactly the same position as that which he would have occupied if he had made the well himself.

Section IV.—*Railways.*

Importance of railways.

1. We have already spoken of the very great importance of railways in removing some of the chief dangers of famine, and we may here repeat that had it not been for the lines of railway which traversed the famine area in 1877, the results to the population would have been vastly aggravated, so that in many cases there might have been a complete failure of food for a time, and the task of affording relief, instead of being difficult only, would have become impossible.

Services they perform with rapidity and certainty.

2. The effect of the railways that have been opened in India during the last 25 years, of which the total length now amounts to nearly 9,000 miles, has been not only to reduce enormously the cost of inland transport, but also to open up communications between distant provinces which were previously, to all intents, inaccessible to one another, and thus to add very largely to the available resources of all districts in times of difficulty. The power thus obtained has the further great advantage of being applicable with much rapidity and certainty, the speed and regularity of railway locomotion, set in action by help of telegraphic communication, giving a command over the resources of the country incomparably superior to anything that could have been thought possible before these works were carried out.

Difficulties of distance and time overcome.

3. So far as the distribution of food grain in India is concerned, it may be now truly said that, where the country is accessible by railways, distance ceases to be a serious obstacle, and the same holds good of time. Six to eight days suffice for merchandise to traverse India with ease in its extreme dimension, a journey that would otherwise have occupied as many months, and have been attended with the greatest difficulty. In time of drought and famine, the substitution of mechanical for animal power for purposes of transport is another very important advantage which it is not possible to reckon by any money standard.

Great saving in cost of transport.

4. During the late famine, grain was sent by rail to the distressed districts over distances of 2,000 miles, and the necessary cost of this sort of transport would not commonly preclude the profitable despatch to even greater distances, if it were requisite, though within the actual geographical limits of the country this could hardly ever be the case. The present tariff rate on the principal lines of railway for full trucks of grain going long distances, say more than 300 miles, varies from about $\frac{1}{4}$th to $\frac{1}{6}$th of a pie per maund per mile, or from $\frac{7}{8}$ths to $\frac{9}{16}$ths of a penny per ton per mile. On grain carried 2,000 miles the highest of these rates would not add to the ultimate cost to the trader more than 1 anna per seer, or say $\frac{3}{4}d.$ per pound; and assuming a cost price in the exporting district of 24 seers per rupee, or $\frac{1}{2}d.$ per lb., and a maximum selling price of 8 seers per rupee, or $1\frac{1}{2}d.$ per lb. in the famine districts, conditions which might be commonly applicable, there would be left, after paying at this rate for 2,000 miles of transport, a margin of 50 per cent. on the cost price of the grain to cover profit and other charges. Taking the lowest rate of freight, $\frac{1}{6}$th pie per maund per mile, the margin would become nearly 100 per cent. on the first cost. The cost of transport by cart is estimated at five times that by rail in ordinary times, but it will increase to ten times as much during famine, at which last rate a distance of 200 miles by cart would about correspond to 2,000 miles by rail.

Possible further reduction of cost.

5. It may be added that on the East Indian Railway special rates as low as $\frac{1}{7}$th of a pie per maund, or $\frac{1}{2}d.$ per ton per mile, are in some cases charged, and as it is known that such rates on this line allow a large margin of profit, it may reasonably be hoped that with the extension of railways and the development of traffic it will be found everywhere possible to reduce the grain rates for long distances to this low rate of $\frac{1}{2}d.$ per ton per mile, or lower. The circumstances under which that railway is worked, with easy gradients, cheap coal, and a very large traffic, are exceptionally favourable; but even if its standard be not attained, it may confidently be anticipated that, provided the lines are suitably extended, the conditions of railway transport are such as to bring the whole of the food grain of the country within reach of every district in time of scarcity, at a price that will not be prohibitory.

Carrying power of railways;

6. To form some approximate conception of the power which any system of railways might have in distributing food, let it be assumed that each line has to provide for a tract of 25 miles in width on either side, or 50 miles in all; also that the separate lines are each 300 miles in length, a distance which would be run over in 24 hours at a slow rate of speed. The area to be thus served will be 50 miles wide by 300 miles long, or 15,000 square miles, and its population at the average rate in ordinary rural districts, say 250 to the square mile, may be reckoned at $3\frac{3}{4}$ millions. One ton of food will supply six persons for a year, so that the year's supply for the whole of this population may be put at 625,000 tons, which distributed over a year will amount to about 1,750 tons daily, and this may be taken as equivalent to 6 broad gauge, or 10 metre gauge, average train loads of 300 tons and 175 tons each respectively.

in relation to entire food supply of any tract;

to the greatest population likely to require food during a season of famine;

7. We have estimated in the first part of our Report (see par. 75) that the greatest number of persons ever likely to require to be fed by the State is about $2\frac{1}{2}$ millions for a year, which is one-third less than the population above spoken of; and it would follow that their whole food supply for a year could be carried on a single broad gauge line in 4 trains daily for that period, or on a metre gauge line in 7 trains daily, either of which numbers are well within the limit of what is possible.

to the population likely to require relief in the worst periods of famine.

8. In the same place we stated our conclusion that about 15 per cent. of the population of any given area affected by the severest famine will require to be fed by the State at the worst period of distress, and about 8 per cent. for the average period of a year. These proportions applied to the hypothetical case we have taken would indicate that 1 broad gauge train daily, or 2 metre gauge trains, would supply the maximum demand for State relief along the line of 300 miles, and that 1 broad gauge train every other day, or 1 metre gauge train daily, would meet the whole demand spread over a year.

Additional mileage required for security.

9. These calculations, we think, satisfactorily show that a suitable system of railways may be confidently relied upon to meet all possible demands likely to be made on them for the distribution of food in time of scarcity. Even with an actual population double that taken in the foregoing calculation, or 500 to the square mile, there would be no difficulty whatever in carrying into any distressed area all that it was likely to require, if the needful supply were brought to the terminus of a railway which should traverse the tract. Such a proportion of mileage to area as that above assumed would require for the million square miles of British India a length of

20,000 miles of railway, of which nearly one-half have already been completed during the last 25 years, or are now under construction.

Cost of this addition and time necessary to provide it

10. That the country should attain the standard of equipment in railways which has thus been spoken of is clearly quite within the limits of what is possible, in a time to which we may reasonably look forward. The experience that has been acquired of late years gives positive proof that railways may be constructed, at a cost which on the average need not exceed 6,000*l.* or 7,000*l.* a mile for a single line, which shall be capable of carrying from 1,000 to 1,500 tons daily over every mile of their length, and which shall be susceptible of being worked at a profit with a very moderate traffic. In one instance such a line has been made at a cost but little exceeding 3,000*l.* per mile. Taking the higher rate, however, of 6,000*l.*, the total outlay required might be estimated at 60 millions sterling for the 10,000 miles, which sum spread over 25 years would amount to 2½ millions a year, which is about the amount that has for some few years past been appropriated yearly to the extension of railways.

The rough estimate which we have thus made of the length of railway that might be required for British India as a whole will, however, at once be seen to be greatly in excess of the probable present needs of the more accessible tracts for which protection is pressingly required, and excluding the mountainous and desert districts, and those naturally placed beyond danger, it is probable that less than one-half of the length first named, or 5,000 miles, in addition to the existing lines, would go far to remove all future risk of serious difficulty in supplying food to any part of any district in the whole country, and the obligatory outlay and the time for completing the works would be reduced in a corresponding proportion.

Importance of providing requisite capital by State action or private companies.

11. We are strongly of opinion that the policy which has led to the investment of borrowed capital in railway extension should not be abandoned, and we must express our concern that the apprehension of financial difficulties should have led to its partial suspension, and our hope that nothing may stand in the way of a very early return to the former scale of grants for this paramount object, or to the adoption of some other equivalent form of aid. It is beyond our province to discuss the question whether the provision of the requisite capital may be best secured and the construction of railways carried on by direct State action or through private companies. But we may remark that there would be manifest advantages in giving free scope to the extension of railways by private enterprise if it were possible; and though the original form of guarantee has been condemned, it may not be impossible to find some substitute which shall be free from its defects, and may secure the investment of capital in these undertakings without involving the Government in financial or other liabilities of an objectionable nature. Also, though the steps taken by the Government with a view to offering facilities for the extension of railways where a proportion of the necessary capital is subscribed locally, have not been effectual, great advantages could be gained by interesting local communities and capitalists in making investments in works of local public utility, and we trust that the plan may be further considered, and, if possible, brought into practical operation.

Scheme for provincial distribution of the cost,

12. With a view to the more systematic and consistent development of a system of railways which may give the greatest attainable security to the country as a whole, we consider that it is expedient to frame a scheme for the distribution among the several provinces of the total sum which can be provided for this class of works, based on a consideration of the already existing lines, and of the lines of traffic on which it is expedient to construct new railways, as well as on the general resources of each province and its liability to suffer from drought.

and the work.

13. Each province should be required to draw out a scheme for the application of the funds allotted to it extending over a series of some years, and after making provision for bringing into harmony the schemes for adjacent provinces, the several Governments should be left to carry out the lines in the order and on the general plan agreed upon, the principle of provincial financial responsibility being as far as practicable applied in the manner already explained in an earlier part of our Report. In this manner we might anticipate that before another 25 years has passed away there will be no district and no important town in British India, with the exception of the mountain districts, to which railway communication will not be extended.

Importance of cheap construction

14. In entering upon a comprehensive measure of such a character the Government should specially bear in mind two things: First, that what is now urgently required is the supply in the shortest time possible of the cheapest form of railway which can be relied on as being capable of carrying such a quantity of food grain as has been spoken of. To secure these objects it is essential that the first cost of the works shall be reduced to a minimum, and that while the construction is thoroughly durable,

nothing shall be attempted at the outset which may divert the available funds from what is strictly essential to what is only desirable as affording increased convenience. The main object in view is the provision of a substantial but cheap line fit for a comparatively small traffic at moderate speed. The very careful restriction of the capital outlay is alike necessary to ensure to the utmost the early completion of the lines, the reduction of the whole cost to a minimum, and the working of the lines being soon rendered remunerative.

Provincial financial responsibility.

15. The second point on which we would place much stress is the adoption of the principle of local provincial responsibility for the financial basis of the whole arrangement. It is of the greatest moment that the sense of local financial responsibility shall at the outset be brought into operation, both in respect to the careful consideration of the character of the works, and to the frugal application of the funds essential for carrying them out. We fully recognise that it may be difficult to attain the great object in view without adding to the financial burdens of the people, and that all possible endeavours should be made to guard against this, and we are satisfied that this end will be best secured by placing on the local executive government the entire responsibility for the protection of the people.

Extent to which these principles have already been accepted.

16. These views do not materially differ from those expressed in a minute by the late Viceroy, dated 14th March 1878, on the subject of railway extension as a means of protection against famine, and we trust that this important State paper may not be lost sight of. The suggestion that schemes of railway extension should be drawn up, such as we have spoken of, has already been acted on in the North-West Provinces, and other Governments have also taken some steps in the same direction.

Suggestions as to lines of railway most needed for famine relief.

17. We are hardly in a position to make any specific recommendations as to the exact lines that might best be taken up for early execution, as many considerations are involved, having reference to questions of engineering, to the engagements the Government may have already entered into, and to financial operations on which we are insufficiently informed. But we may usefully mention certain tracts which are at present unprovided with railways, and are at the same time difficult of access, and liable to suffer from drought, to which it is certainly desirable that attention should be given as soon as practicable.

In Punjab.

In the Punjab improved transport is wanted between Delhi and the districts to the north and west of that city, which are irrigated by the Western Jumna Canal, and which will afford a certain source of supply to the arid region to the west and south.

In North-West Provinces.

In the North-West Provinces may be named the province of Bundelkhand, lying between the Jumna and the Jubulpore Railway. In Northern Bengal the districts of Behar and Bhagalpur north of the Ganges also require the extension of the lines already constructed. The communications between Orissa and Eastern Bengal may probably be best secured by means of canals; otherwise a coast line of railway connecting Calcutta with Cuttack and the deltas of the Godaveri and Kistna, and with Madras beyond might be recommended.

In Madras.

Southern Madras is well supplied with railways, and what seems most needed for this province is to open a direct communication from the Godaveri and Kistna and Nellore to Karnul, Cudalore, and Cudapa. For Mysore the extension of the line now under construction from Bangalore to Mysore, through the northern districts towards Dhârwár, is also important.

In Bombay.

Lastly, in Bombay, the opening of lines in the Southern Mahratta country, with access to the sea either at Kárwár or near Goa, is very necessary, provision being made for junctions with the Madras Railway at Bellary and with the line from Mysore, and for communications north-westward to Satara and north-eastward to the Great Indian Peninsula Railway, in the direction of Sholapur.

Pressure of famine traffic on railways.

18. We next come to consider the measures that can be suggested for improving the management of the traffic of existing railways in times of scarcity. The whole quantity of grain moved by rail into and through the famine districts in 1877 is not easily reckoned, but the quantity carried in all India was nearly 3½ million tons, and possibly half of this or more was influenced by the scarcity. The whole tonnage of all sorts of goods traffic having been rather less than 8½ millions, it will be readily understood that the pressure on the railways leading to and through the famine area was very heavy, and many complaints have been made as to the deficiencies experienced. Various remedial measures have been suggested, but we do not think that they are likely to be practically operative, and what is aimed at may, in our opinion, be better accomplished otherwise.

19. First may be noticed the alleged insufficiency of rolling stock to meet sudden emergencies. We consider that it would be impracticable and unreasonable to require the provision of any permanent excess of this part of the railway equipment over what experience shows to be from time to time necessary for the ordinary economical working of the lines. The occurrence of seasons of famine is so irregular and the intervals between them are so various that the maintenance of a reserve of stock to meet the possible demands they might occasion would certainly involve great waste. It could not be enforced under the contracts with the railway companies, and the whole burden would fall on the State. Nor do we think that the suggestion of a general reserve of rolling stock belonging to the State, but held for the use of all Indian railways, could be satisfactorily worked out in practice. It has already been negatived, and we do not wish to renew the proposal. Insufficiency of rolling stock,

20. But there is little doubt that the working efficiency of all or most of the railways could be much increased by the gradual improvement of the rolling stock, and by getting rid as soon as possible of the old wagons of insufficient carrying capacity with which most of the lines originally started; and to this point we believe attention is already being given. to be met by increased carrying capacity,

21. Further, it must, in our opinion, be to the gradual extension of railways, and the provision of a network of subsidiary lines of traffic in addition to the main lines now open, that we should look for the future more complete fulfilment of the function which these means of transport have to perform in the distribution of food in time of scarcity. With such a growth of the mileage the quantity of stock will increase in proportion, and the wants of the country will be supplied with the least possible burden on its resources. and by multiplication of railways.

22. The question has been raised how far it may be expedient for the Government to endeavour to obtain a reduction of the tariff rates, either as a permanent arrangement or temporarily during time of famine, with a view to increasing the power of the railways to transport grain with a profit to traders over long distances. The last-named system was followed in 1868 and 1873, the loss due to the reduction being made good to the railways by the State. But in 1877 this course was not adopted, and the ordinary commercial tariff rates were charged. The temporary reduction of rates made in the earlier years was without doubt followed by increased traffic, but as it was not possible to distinguish the increase due to this reduction from that consequent on the natural operations of trade, the Government had to pay compensation on the whole quantity carried, and a large outlay was incurred which gave undue profits both to the railway companies and traders. On the later occasion the railways in many cases for long periods carried as much as they were able to carry; and the reduction of rates in such circumstances would have evidently been inoperative in adding to the supplies sent into the distressed districts. Moreover, when the Government becomes the great employer of labour, as it does in times of extreme famine, and regulates the wage in proportion to the cost price of food at the relief works, it becomes a matter of secondary importance whether the cost of the transport of the grain so consumed is all paid to the dealer when he imports it at the tariff rate, or partly to the railway company as compensation and partly as cost of transport to the dealer when he imports it at a reduced rate. These considerations, combined with the circumstance that there has been a general satisfactory tendency to reduce the tariff rates on all the railways to amounts which give no more than a fair profit on the actual cost of transport, appear to us to fully justify the abandonment of all attempts to modify the tariff of railways in time of famine. Reduction of freight on food grain in famine times undesirable.

23. There is still considerable variation among the rates charged for freight on Indian railways, and it is probable that reduction is in many cases possible without causing loss of income. The power of regulating the tariff within certain limits is already placed in the hands of the Government under the contracts with the companies, and there is a general tendency on the part of all of these to recognise the necessity for establishing moderate charges. It need hardly be said that in the interests of the public, which, however, are in this respect not altogether identical with those of the railway companies, the object to be aimed at should be to secure the largest remunerative traffic at the lowest possible rates, and we believe that the influence of the Government has always been exercised in this direction. On the whole, we are of opinion that the same judicious control over the tariffs which has been exercised heretofore will probably bring about such ameliorations as are really necessary, and that this result will be further ensured by the future opening up of Importance of securing lowest tariff compatible with fair profit.

new lines of railway through which a sufficient degree of competition will gradually be established to prevent any serious evils in this direction.

Allotment of wagons.

24. Another point to which attention has been turned is the system of allotment of the wagons when the demand for freight in time of scarcity exceeds the powers of any line. Various suggestions have been made, but we are unable to support any departure from the simple rule that the railway traffic management should be left to settle this business without interference unless abuses arise, the general principle to be followed being that goods shall be accepted and despatched in the order in which they are brought to the railway stations. The Government has power to control the operations of the companies, and it has officers specially charged with the duty of supervision. In time of unusual pressure the vigilance of these officers should be increased to bring to notice any abuses that may arise, and to give to the railway officers every assistance that is possible in the discharge of their greatly increased and more anxious duties; and it may be desirable to add specially to the number of such supervising Government officers, just as is found necessary to strengthen other branches of the administration.

Storing sheds.

25. The provision of additional temporary storing sheds for the protection of grain at or near stations where traffic accumulates, will often be a useful or necessary measure in the districts to which or from which an active trade springs up, and the cost of providing such accommodation might reasonably be shared between the railways and the municipal or other local authorities, according to the circumstances of each case.

Precedence to be given to carriage of food grain.

26. We think also that in times of famine, when the traffic is in excess of the carrying powers of any railway, precedence must, with a view to the preservation of life, be given to food grains over other classes of traffic. During the famine of 1877 the distribution of wagons was at times such as to give an undue preponderance of the carrying power to other classes of goods. Great as may be the inconvenience experienced by merchants by such delay of their goods, it must, we think, be encountered in times of national emergency, and with a view to the public interest. It may be necessary to give legislative protection to the railway administration from liability to actions for damage on account of delay thus caused.

Co-operation for purposes of through traffic and police arrangements.

27. Constant care should be taken that the arrangements are complete between lines engaged in forwarding food to a famine area, for interchange of rolling stock and transmission of traffic and return of empty wagons, and not of a nature to produce confusion or delay under press of work, and the subject should receive vigilant attention so long as a heavy food traffic continues. Fraudulent practices of various sorts have arisen in connection with the allotment of wagons and the custody of grain in transit, and they should be energetically checked. It will doubtless be advisable that the supervision of all these duties should be entrusted to some active and experienced officer, who should be authorised, when occasion requires, to exercise the powers which Government may possess to control the action of the railway companies, or otherwise do what may tend most effectually to remove difficulties. The police arrangements of the lines will likewise require additional watchfulness; and it should be always borne in mind that every cause which is likely to lead to an interruption of the traffic must in such times be guarded against with increased care.

Chapter VI.—Miscellaneous Subjects.—Conclusion.

Section I.—*Encouragement of Diversity of Occupations.*

Diversity of occupations a great desideratum.

1. We have elsewhere expressed our opinion that at the root of much of the poverty of the people of India, and of the risks to which they are exposed in seasons of scarcity, lies the unfortunate circumstance that agriculture forms almost the sole occupation of the mass of the population, and that no remedy for present evils can be complete which does not include the introduction of a diversity of occupations, through which the surplus population may be drawn from agricultural pursuits, and led to find the means of subsistence in manufactures or some such employments.

Change [illegible] brought about by Government interference.

2. It will be almost self-evident that such a change in the condition of the people could not be brought about by any direct action of the State, and that there would be much risk of interference of this description, discouraging the spread of sound principles of trade, and retarding the operation of private enterprize. So far as we are able to form an opinion on a question so difficult of solution, the desired result can only follow upon an increased desire to apply capital to industrial pursuits in India, which again will be a consequence of a growing conviction that adequate profits may be secured on investments, under a condition of continued peace and good government.

Can [illegible] development [illegible].

3. The State should certainly use its utmost endeavours to assist in the preparation of the country for reaching such an advanced condition, but it will, we believe, be by indirect means, such as the extension of railways and the development of local trade and foreign commerce, that the end will be attained, rather than by any attempts to give adventitious aid to particular branches of industry. Capital will accumulate in the country or will flow into it for investment in proportion as security is maintained, and facilities for obtaining profitable markets for all sorts of produce are enlarged.

Obstacles to investment of capital in India.

4. The obstacles that stand in the way of the investment of English capital in India, such as the climate, the distance, and the want of exact knowledge of the country, are still very great, and it may be feared that the disinclination to risk such investments has been rather increased than diminished by the system of giving a guarantee of interest at a high rate on the large capital of the great railways. So long as the opportunity was afforded to capitalists to make advantageous investments on a large scale on the security of the State, the inducement to attempt any enterprize without such security must have been greatly diminished.

Direct State aid not likely to be beneficial.

5. Looking to the very great importance of fostering the growth of diverse branches of industry we should see with satisfaction any steps taken which would tend to it; but we are satisfied that the circumstances can now hardly arise in which the Government could beneficially extend any system of guarantee to such undertakings for the purpose of encouraging their introduction, or should otherwise offer direct assistance to them. Direct State aid could not be given without some corresponding power of control or interference, and the exercise of any such power would be almost certainly incompatible with the successful management of industrial occupations. It is probable, moreover, that the whole available means of the State will yet be required for many years, either for railway extension, with or without the co-operation of private enterprise, or for the extension of irrigation works which are no less necessary, and which experience has shown to be unsuited for management by private companies.

How Government may [illegible] assist. Its [illegible] case [illegible].

6. There are, however, directions in which we have no doubt the Government might usefully aid in fostering the inception of new industries. The introduction of tea cultivation and manufacture is an instance of the successful action of the Government, which should encourage further measures of a like character. In this case, the Government started plantations, imported Chinese workmen, distributed seed, and brought the industry into a condition in which its commercial success was no longer doubtful. It then retired from any share in it, sold its plantations, and left the field to private capitalists. The cultivation of cinchona is a measure of a somewhat similar description, though it has not yet passed entirely into the hands of private persons.

System proposed for improvements in agriculture.

7. In treating of the improvement of agriculture, we have indicated how we think the more scientific methods of Europe may be brought into practical operation in India by help of specially trained experts, and the same general system may, we think, be applied with success both to the actual operations of agriculture and to

may be extended to manufactures.

the preparation for the market of the raw agricultural staples of the country. Nor does there appear any reason why action of this sort should stop at agricultural produce, and should not be extended to the manufactures which India now produces on a small scale or in a rude form, and which, with some improvement might be expected to find enlarged sales, or could take the place of similar articles now imported from foreign countries.

Industries which could be developed.

8. Among the articles and processes to which these remarks would apply may be named the manufacture and refining of sugar; the tanning of hides; the manufacture of fabrics of cotton, wool, and silk; the preparation of fibres of other sorts, and of tobacco; the manufacture of paper, pottery, glass, soap, oils, and candles.

Existing Government industrial establishments,

9. Some of these arts are already practised with success at Government establishments, such as the tannery at Cawnpur, which largely supplies harness for the army, and the carpet and other manufactures carried on in some of the larger jails, and these institutions form a nucleus, around which we may hope to see a gradual spread of similar industry. They afford practical evidence of the success of the arts practised, and are schools for training the people of the country in improved methods, and so long as any such institutions fairly supply a Government want, which cannot be properly met otherwise, or carry on an art in an improved form, and therefore guide and educate private trade, their influence can hardly fail to be beneficial. The same may be said of the workshops of the Government and the railway companies, which are essential for the special purposes for which they are kept up, and gradually train and disseminate a more skilled class of artizans.

how far beneficial.

Other forms of State help.

10. The Government might further often afford valuable and legitimate assistance to private persons desiring to embark in a new local industry, or to develop and improve one already existing, by obtaining needful information from other countries or skilled workmen or supervision, and at the outset supplying such aid at the public cost. So far as the products of any industries established in India can be economically used by the Government, they might properly be preferred to articles imported from Europe, and generally the local markets should be resorted to for all requisite supplies that they can afford. We are aware that steps have been taken within the last few years to enforce these principles, but more can certainly be done, and greater attention may properly be paid to the subject.

Government experiments not desirable.

11. Otherwise than as above indicated, we do not think it desirable that the Government should directly embark in any manufacture or industry in an experimental way. Such experiments to be really successful or valuable must be carried out on a commercial basis. The conditions of any Government undertaking are rarely such as to give it this character, and the fear of incurring an undue expenditure on what is regarded as only an experiment will often lead to failure, which will be none the less mischievous because it was thus caused.

Technical training.

12. There is no reason to doubt that the action of Governments may be of great value in forwarding technical, artistic, and scientific education, in holding out rewards for efforts in these directions, and in forming at convenient centres museums and collections by which the public taste is formed and information is diffused. The great industrial development of Europe in recent years has doubtless received no small stimulus from such agencies; and the duty of the Government in encouraging technical education is one to which the people of England are yearly becoming more alive, and which it is certain will be more adequately performed in the future. All the causes which render such action on the part of Governments desirable in Europe apply with greater force to India. Experience, however, is still wanting, even in England, as to how such instruction should be given, and for India it will be hardly possible at present to go beyond the training of ordinary workmen in the practice of mechanical or engineering manipulation.

Importance of giving help within legitimate limits.

13. To whatever extent it is possible, however, the Government should give assistance to the development of industry, in a legitimate manner, and without interfering with the free action of the general trading community, it being recognised that every new opening thus created attracts labour which would otherwise be employed to comparatively little purpose on the land, and thus sets up a new bulwark against the total prostration of the labour market, which in the present condition of the population follows on every severe drought.

SECTION II.—*Forest Conservancy.*

Influence of denudation.

1. India is possessed of immense natural resources in the forests of the Himalaya nge, of Burmah, the Central Provinces, the hill slopes of the western ghats, and the ountain country of Madras, but in all of these improvident denudation has arisen as consequence of a mistaken policy of trusting to the self-interest of private proprietors r the preservation of the timber, or has accompanied the growth of population under peaceful Government, from the increase of cultivation, the demand of large centres r fuel, and of timber for the construction of railways and other purposes. The uestion of the influence which the denudation of forests may have upon the rain-fall, d on the subsequent retention of the rain-water in the soil, and its effect on the rmanence of springs or flowing streams, is among those on which our opinion has en asked. Whether the presence or absence of forests has any direct effect in ecipitating rain is a much disputed point which we shall not attempt to decide, but ere is before us a great amount of evidence from all parts of India that the destruc- n of forests is believed to have acted injuriously by allowing the rain-waters to n off too rapidly. They descend from the hill sides in furious torrents, which carry wn the soil, cause landslips, and form sandy deposits in the plains, so that the surface ainage, which, if gently and evenly distributed over an absorbent soil protected by getation, should furnish a perennial supply of fertilising springs, passes rapidly away, d the streams into which it collects quickly cease to flow, after causing mischief stead of good.

Sufficiency of the Forest Act for purposes of conservation.

2. It only gradually became apparent that it was requisite for the Government to terpose its authority for the preservation and systematic working of the forests, both protect the country from serious injury through the improvident destruction of the ber, and to turn to the best account the vast resources provided by nature in the ape of timber and other produce in demand for export or local consumption. The tion of the State, which certainly was too long deferred, has everywhere been much mpered by the claims of private proprietors in forest tracts, and by prescriptive hts of cultivating by destructive methods; but the Indian Forest Act of 1878 has length given the Executive ample powers to arrest further waste and denudation d to administer the forest resources to the greatest public advantage, while it ensures fficient satisfaction for private rights.

Provisions of the Act.

3. Under this Act the forests of the State are classed either as "reserved," which eans absolutely set aside for strict conservancy, and which includes the areas covered the more valuable timber and the wooded tracts about the sources of rivers; or as protected," which signifies that they are managed to meet local demands for pasture, el, and timber. In both cases, however, it may happen that such tracts consist either timber-producing lands or of land devoted to the growth of firewood or merely to sture. The restrictions which are in all cases made applicable to Government forests regard to clearing and pasture may be extended under this Act to forests which private property if the public interest so requires, but in such case the owner y call upon the Government to purchase his rights within an appointed time. All vate rights in Government forests are to be defined and recorded; and, if desirable, ught up or adjusted by transfer.

Statistics of Government forests.

4. Great activity is now being displayed in most of the provinces in carrying out e purposes of the Act, but the present area of reserved State forests will appear y small to anyone who is familiar with what has been done in some European ntries. In the Punjab the area of reserved forests legally demarcated and settled to March 1879 was only 791 square miles, and the conservator says that there is where in this province, except in the dry and scantily peopled upland between the at rivers (known as the "Bar"), and in a few remote places, any large excess forest lands which can be absolutely set apart without interfering with the present erests of the people. There are, however, 3,000 square miles of forest under the ntrol of Government, though not yet regularly reserved under the Act or protected, d 17,000 acres of new plantation. In the North-Western Provinces and Oudh the ea of reserved forest is 3,260 square miles, and there are other extensive Government rests in the Himalaya which have not yet been declared either reserved or protected. Bengal the reserved forests occupy 2,967 square miles, the protected 1,925 square les, besides 5,108 square miles controlled but not yet under the Act. In Assam the served area is 1,983 square miles, and that of other Government forests 6,089, or 72 square miles in all, about one-fifth of the whole area of the province. Besides

Punjab.

North-Western Provinces and Oudh.

Bengal.

Assam.

this, a very large extent of forest land in Assam is the private property of zem[illegible] planters, or village communities. In the Central Provinces the area of Gove[illegible] forest is 19,383 square miles, and there are no private rights in any part of [illegible] only 2,501 square miles are permanently set apart as "reserved" forest, the rema[illegible] 16,882 square miles, being known as second-class reserves (equivalent to what is [illegible] called "protected"), which are held available for the extension of cultivation [illegible] utilised for the supply of wood, pasture, and forest produce to the people of [illegible] neighbourhood. In Berar 1,366 square miles are reserved, and there are 3,097 sq[illegible] miles besides of unreserved Government forest; in Ajmere 100; in Coorg 205 sq[illegible] miles are reserved; in Mysore 454. In British Burma the area of reserved for[illegible] 1,410 square miles, in part of which there are private rights. But demarcati[illegible] still in progress, and it is stated that the Government forests not yet included [illegible] the reserves comprise more than half of the entire province. The people have [illegible] accustomed to supply themselves with forest produce from the Government for[illegible] without any payment or any other restriction, and measures have to be taken [illegible] applying the rules suitable for "protected" areas to these Government forests, and [illegible] requiring payment for timber and forest produce taken out for sale, and not for [illegible] use of the agricultural population. In Bombay the Forest Act is being adminis[illegible] with great energy, and the area of reserved forest in March 1879 measured 8,657 squ[illegible] miles, besides 5,494 square miles protected. A large portion of the protected [illegible] will become "reserved" as demarcation advances in Khandesh, Thana, and espe[illegible] Kanara, in which latter district 83 per cent. of the total area is Government f[illegible] containing building timber of the most valuable kind.

5. In Madras, with great forest resources, there has been, according to the infor[illegible] tion before us, less systematic action for the protection of this part of the pu[illegible] interests than in other provinces. Though a Forest Department has been establi[illegible] for some years, no forest law has yet been introduced. The Madras Govern[illegible] objected to the Forest Act of 1878, which is [illegible] [illegible] has [illegible], and, a [illegible] Forest Act [illegible] [illegible] sion. According to the latest available report the [illegible] Madras forest in charge of the conservator is estimated at about 5,000 square mi[illegible] but the demarcation of reserved forest has scarcely commenced, and there are in [illegible] no reserves except some small areas in Cuddapah, Salem, Trichinopoly, Madur[illegible], South Arcot, chiefly to supply fuel for the railways. We are informed that [illegible] equently alienation is going on every year, that forests are being burned for "kum[illegible] or hill cultivation, and that forest tracts which should be conserved are disappear[illegible] before the demand for land for planting coffee, while (on the Nilgiris) "the abs[illegible] of demarcation of what is to be reserved is a subject of much annoyance to plant[illegible] as no one can tell what land is available."*

The Conservator of Forests in Madras mentions instances, both from pers[illegible] observation and the reports of his subordinates, of the effects of denudation in ca[illegible] the drying up of streams, the flooding of rivers, and the destruction of the soil [illegible] mountain sides by the rapid descent of flood-water no longer arrested in its cour[illegible] vegetation. He is supported in these views by various forest officers, whose [illegible] he forwards, and by a large number of district officers, who fully admit the [illegible] which is in progress, the absence of any efficient means to arrest it, and the [illegible] necessity of legislation.

6. It is much to be regretted that the introduction of a Forest law has been so [illegible] deferred in Madras, and we trust that measures for protecting the existing forest [illegible] from denudation, and for obtaining power to reserve suitable areas for pasture, [illegible] may be so important in their relation to future seasons of drought, will speed[illegible] undertaken in Madras with the same energy and judgment which is being dis[illegible] elsewhere.

7. The fact that there are only about 24,000 square miles in all India [illegible] absolutely protected from all injury, and devoted strictly to legitimate forest uses [illegible] special legislation, shows that very much still remains to be done, and that [illegible] difficulties to be overcome in dealing with private rights are considerable. B[illegible] Indian Forest Act prescribes a clear form of procedure for arranging a compromi[illegible] equitable terms, and there is now no reason for delay in ascertaining what righ[illegible] be established, and effecting the most advantageous settlement of them consiste[illegible] due regard to public and private interests.

---

* Col. Beddome's evidence.

8. There is a chapter of the Forest Act purporting to promote the formation of village forests by the assignment of small forest areas to the use and management of village communities. Such areas have been assigned in most parts of India where forests exist, a portion sufficient for the wants of the people being always marked off and assigned to the villages before the superfluous area was taken up as a Government reserve; but we have not learnt that much has been done in the direction of managing or conserving these tracts, and it is probable that the measure is not easily applicable to localities distant from the existing forest tracts. In the Hazára district of the Punjab the village forests are managed, under the control of Government, in the interest of the people to whom they belong, and are open to the villages concerned for the supply of their requirements. In the Kolár district of Mysore an arrangement has been made voluntarily by the ryots, with the encouragement and assistance of the district officer, under which considerable areas of poor land within the limits of villages have been set apart as forest land, to be managed by the patels and village community under simple rules of conservancy, the villagers planting them with trees, and the village servants protecting them from mischief, while the people of the village are allowed in return to take brushwood and timber, and to pasture their cattle within them. In Madras also a somewhat analogous system has been established since 1859, when the Jungle Conservancy Fund was instituted for similar objects, and has subsequently been brought into operation in all districts. On the other hand, in the Central Provinces, where extensive tracts were at the time of settlement assigned as village forests for the benefit of the agricultural communities, it is stated that the proprietors have so far misused their position as to keep these tracts for their private profit, by selling the produce and forcing their tenants to resort exclusively to the Government-protected forests for such timber and fuel as they require. This is in direct violation of their engagements, by which the proprietors are bound to allow their cultivators to take from these forests without charge all wood required for agricultural purposes, and to permit them to graze their cattle in them without payment.

Village forests.

9. We have evidence from all parts of India that the mischievous practice of indefinite trespass on the public forests has sprung up from short-sighted eagerness for immediate profit, and ignorance of the conditions under which alone the reproduction of forests is possible; and the public interest evidently requires that any reasonable privilege of this kind, which it would be harsh to abolish, should be enjoyed only within defined limits and under salutary rules. Village communities may thus be brought to avail themselves of forest produce in a manner consistent with its reproduction, and not with a license recklessly destructive of the public property, and we think it probable that some of the least productive tracts now under the plough might be managed with greater benefit to the community as protected forest for village uses than as arable land.

Importance of extending the system of village forests.

10. So far as any immediate advantage is to be sought from the extension of forest in respect to protection against drought, it will, in our opinion, be mainly in the direction of the judicious enclosure and protection of tracts such as have just been alluded to, from which improved and more certain pasture may be secured for the cattle of the vicinity, a supply of firewood secured which may lead to a more general utilisation of animal manure for agriculture, and a possible addition made to the power of the subsoil to retain its moisture, and to the prospect of maintaining the supply of water in the wells. In all cases existing communal rights of pasturage should receive careful attention, and, as far as possible, efforts should be made to extend facilities of this description, and to add to their value by a suitable system of protection. As to the protection of the higher hill slopes from denudation, it may confidently be stated that they will, in any case, be more useful if kept clothed with wood than subjected to the wasteful and destructive process by which they are brought under partial and temporary cultivation, and that, whether the expectation of an improved water supply as a consequence of such protection is fully realised or not, there is on other grounds sufficient reason for arranging for the conservation of such tracts where it is practicable.

General objects to be arrived at.

Section III.—*Emigration.*

1. In para. 191 of the earlier part of our Report we referred to the causes which led us to think that emigration beyond the sea is not likely to be of practical utility as a

Emigration beyond sea in ordinary seasons.

measure of relief in time of actual famine. We now propose to consider how far it may be looked upon as a probable means of affording relief to those parts of the country where the population is pressing unduly on the productive power of the land.

Its unpopularity.

2. From the testimony received from every part of India there is reason to fear that, so long as the tastes, habits, and temperament of the Indian peasant remain unchanged, no material improvement in his lot will be effected by emigration. Too often, not even the dire extremities of famine have sufficed to drive him from the locality in which he and his forefathers have lived, and the scenes which bound the narrow horizon of his existence; and where temporary migration has taken place, it commonly ceases as soon as the local pressure of famine is removed. The peculiar energy and spirit of enterprise which are requisite to stimulate emigration to a distant and unknown foreign country in the hope of a higher standard of material comfort, are absent in that part of the population which most needs such relief; nor is there anywhere a field of foreign labour sufficient to give scope to an appreciable fraction of the population, supposing the other difficulties to be overcome.

Improbability of anything being done effectually to stimulate it.

3. Elaborate provision has been made by the Legislature for regulating emigration to foreign countries, and for the protection of intending emigrants from oppression or fraud. It has been considered by some that there is still room for improvement in this branch of the administration, and that in particular it would be advisable to have, as recruiters, a class of men who belong to the district in which they recruit, and who should be sent in the first instance to the place for which emigrants are sought, and thus acquire a personal knowledge of it which might be of use in robbing the proposed expedition of some of its terrors. The whole idea of emigration beyond the seas is, however, so foreign to the tastes of the people of India, and their physical constitution, which is a necessary accompaniment of the climate in which they are born, restricts so seriously the possible field of enterprise, that it is hardly to be expected that it will make any considerable way within any time that can now be foreseen, except with a very small class. For obvious reasons any direct intervention of the Government for the purpose of promoting foreign emigration cannot be contemplated, and all that can be done is to give to private efforts a free and fair opening wherever there are any indications of their being likely to succeed.

Migration from one part of India to another.

4. From time to time attempts have been made to induce the inhabitants of the over-populated portions of the empire to betake themselves to some of the large areas which are still without a population; but these have in all cases been attended with great difficulties, and with few exceptions have been almost total failures. The supply of labour for the tea gardens in Assam and Cachar has given rise to prolonged controversies as to the precautions needful to secure to the immigrant the protection which he needs from disease and ill-treatment, and after a long series of years it can hardly be said that the difficulty has ceased, or that a healthy and natural flow of labour has been established.

Failure of attempt to encourage such migration from Behar to Assam,

5. So great is the aversion of the Indian peasantry from leaving their homes, and so many difficulties of other descriptions arise in connexion with any attempt to organize such movements, that the efforts at various times made by the Government to afford relief by measures of this nature have all been fruitless. At the beginning of 1874, when various schemes of relief were under discussion, it was proposed that labourers from the distressed districts of Behar should be aided by Government in finding their way to the tea districts of Assam and Cachar, provided that the planters were ready to give them one-year engagements and to employ them in healthy places. These proposals were published later in the year, but did not prove acceptable to the planters, who objected to the short term of the engagement, and shrank from the possible necessity of importing food for their extra hands. On these grounds the project was abandoned.

to Burma and elsewhere,

6. Another scheme entertained at this time was to send emigrants to Burma, where the Chief Commissioner was ready to give employment to 6,000. A special superintendent was put in charge, recruiters were appointed, and between May and December 1874, 4,600 adult males were shipped to Burma. The expense, however, was wholly disproportionate to the relief obtained. The emigrants were not of a class likely to be useful; and the result of the experiment was most unsatisfactory so far as the interests of Burma were concerned. Another project of settling 100 families of Behar agriculturists in the Jalpaiguri Duars was tried in 1876. But no such volunteers from Sáran or Tirhut, the districts which it was especially desirable to relieve, could be obtained; and the Lieutenant-Governor of Bengal informed the Commission that, in his opinion, nothing short of compulsion will make an Indian agricultural population, even in famine time, take freely to migration till it is too late. A quite unsuccessful attempt

was lately made by a high Native official to induce families to migrate from Bardwan, his native place, to the rich virgin soil of Cooch Behar, where he was employed. The present Bengal emigration is almost entirely from Chutia Nagpur, Santhália, and Sáran The two first of these districts are the recruiting grounds of the tea districts, and a larger fraction of the inhabitants is drawn off than is at all desirable. Sáran, which is densely over-populated, sends crowds of labourers every year to work in other districts, marching as far as Assam; but they never take their families, and always show a strong determination to return with their earnings.

7. A project for colonizing a tract known as the Charwa Jungle, in the Hoshangabad District, was put forward by the Chief Commissioner of the Central Provinces in 1876, with a considerable promise of good results, but was abandoned after a year's trial, almost all the colonists from the North-Western Provinces having left the place to return home. The collapse of the experiment is attributed by the Chief Commissioner to mistakes which do not, in his opinion, preclude the hope that it might have been attended by success if more skilfully managed. This failure, however, illustrates what is the main difficulty in promoting emigration from the densely populated to the wilder parts of India: the superstitious dread of a strange place felt by the settlers, their helplessness under new conditions, and their inability to stand alone, all of which failings are the necessary consequences of the backward condition of the section of the agricultural population from which alone such emigrants must be drawn.

and to Hoshangabad.

8. But, despite the discouraging experience of past attempts, we are not convinced that migration in India has as yet had so conclusive a trial as to justify the abandonment of all further attempts to deal in this manner with an evil which must continue to increase. There are many millions of acres of excellent soil in India, which either, as in the Punjab, have never been reclaimed, or which have lapsed into jungle under the desolating effects of war, lawlessness, or drought. There are other parts, again, where already the pressure of the inhabitants on the soil is such as to render it difficult for the people to do more than earn a precarious livelihood, and where the condition of the agricultural labourer has been brought to the lowest verge compatible with continued existence, and renders him the easy victim of famine or any other vicissitude. The natural remedy for such a state of things would seem to lie in some expedient by which the population, where redundant, may be enabled to find employment in the utilization of the natural resources of other localities which need nothing but the hand of man to convert them into scenes of plenty. That the difficulties in the way of realizing such a result are very great, past experience renders too certain, but we think that further efforts should be made to overcome them. The people will not readily move of themselves, but will, if other conditions are favourable, follow a leader in whom they have confidence, and who will help and support them during the first difficulties of colonization. A scheme of migration designed with scientific care to meet the physical wants and the mental and moral idiosyncracies of the Indian agricultural population is one of the desiderata in administration which the Government has still to seek, and which, despite the chances of failure, it ought, as we think, to endeavour to frame and carry out.

Possibility of yet devising a practicable scheme.

Conclusion.

1. Before concluding this Report we desire to express our obligations to the many persons who have co-operated in the task we have had to undertake by supplying us with the varied information on obtaining which the successful prosecution of our inquiry so greatly depended. And more particularly we would name Mr. C. A. Elliott, our secretary, to whose never-failing industry and wide and intimate personal knowledge of large parts of Northern India and their system of administration, and the condition of their people, we feel that the value of our Report, especially as regards those districts, will be very largely due.

Recognition of valuable information supplied to Commission.

2. Further, being impressed with the vast importance of the whole subject, and no less with the very wide scope of the considerations which it involves, and the many matters of detail as well as of principle which are discussed in our Report, we venture to offer a few suggestions as to the manner in which the Government might best deal with it, in view of obtaining an early decision on the numerous proposals we have made, of which, from the nature of the subject, no useful summary could be prepared.

No useful summary of Report possible.

3. In the first place, we would advise that an officer should at once be appointed to initiate the special department, which we have proposed (see Part I., para. 115), to deal with Agricultural Statistics and Famine Administration under the Government of India. That on this officer should be imposed the duty of bringing before the Govern-

Suggestion as to best mode of dealing with it by Government of India.

ment of India as early as possible the several propositions contained in this Report, so that decisions may be arrived at without any unnecessary loss of time on the principal points that have been raised. The establishment of the corresponding special departments under the various Local Governments should, we think, then be made to follow as speedily as practicable; and the responsibility be placed on those Governments in like manner to take up, for the earliest possible decision, all further subsidiary questions remaining for settlement, after the general outlines of the policy to be followed in dealing with famine relief, and measures of protection and prevention shall have been laid down by the Government of India and Secretary of State.

Hope expressed of early adoption of whatever remedial measures are approved.

4. We may be pardoned for expressing the hope that the magnitude of this subject and its intricacy may not be permitted to stand in the way of the early practical adoption of whatever remedial measures are now approved, and that the well known dangers of attempting too much, or of postponing all action till all doubt is removed, and of prolonging discussion in the vain expectation of obtaining complete uniformity of judgment, may in this case be avoided.

RICHARD STRACHEY.
JAMES CAIRD.
H. S. CUNNINGHAM.
H. E SULLIVAN.
J. B. PEILE.

31st July 1880.

Note of Dissent by Mr. Sullivan from Opinions expressed in this Report.

On the Incidence of Taxation, the true character of the Land Revenue, and the proprietary right of the State in the Soil.

1. In a speech delivered before the Legislative Council of India, in February 1860, the late Mr. Wilson, when, in his capacity of Finance Minister, he introduced a bill for the levy of a license duty and a tax on incomes, made the statement that the opium revenue of India could "in no sense be called a tax," and that the land revenue could "only be regarded as rent." As these views have been adopted in the Report, I propose briefly to record my reasons for considering that they are unsound.

2. In propounding the above theory Mr. Wilson desired to show that the natives of India being but lightly taxed, were able to submit to a further contribution to the necessities of the State, and as it has been suggested, at paragraph 180 of the first part of our Report, that additional cesses should be imposed on the agricultural classes of Bombay and Madras to meet the cost of protecting those provinces from the effects of drought, I presume that in adopting his ideas on the subject my colleagues have the same object in view. I wish I could see my way to arriving at the same conclusions, but as it is a fact that in most parts of India, and especially in the above-named provinces, the agricultural classes already contribute largely to the public revenues, a proposal to increase their burdens cannot be hastily accepted, and the mere assertion that the deductions which are now made from their profits are not of the nature of taxation will not put them in a position to bear additional imposts which, if no such deductions were made, might not press heavily on them. They know that year by year they have to pay a certain amount to the official tax-gatherer, and it is a matter of indifference to them by what name their contribution is known to economists. The distinction aimed at in the Report is far too subtle for the mind of the Indian taxpayer to appreciate, even if it had an accurate basis to rest on, and this, notwithstanding that the high authority of Mr. Wilson can be cited in its favour, I am inclined to doubt.

3. I am at a loss to understand how the revenue derived by the Government of India from the opium monopoly can be said to be "in no proper sense raised by taxation." (*See* Chap. I., Section VII., of Part II., pages 89–93.) There is no question as to opium being a valuable product of the soil, which in spite of a very heavy duty is in great and increasing demand; and it is equally certain that were the present restrictions on its manufacture and sale removed a considerable portion of the nine millions which now form a principal asset of the public revenue would go into the pockets of the agricultural and mercantile classes. By intercepting these profits it seems perfectly clear to me that a heavy tax is imposed by the State on this branch of agricultural and commercial industry, a tax far exceeding in amount the share of produce and profits which by prescription the ruling power in India is entitled to claim. When the matter was discussed at a meeting of the Commission it was alleged that the profits of the monopoly were derived from the foreign consumers, and to a large extent this is doubtless correct; but I contend that if the monopoly were abolished the growers could command their own terms with the merchants, and as the growth and manufacture of the commodity is confined to a comparatively limited tract of country, there would be keen competition amongst the latter to secure it in view of the enhanced profits to be obtained from the trade being thrown open. To maintain the proposition that the opium revenue is not in any way raised by taxation of the people of India it must be shown that the price paid by Government to the growers is as much as they would receive if there were no State monopoly, and that the merchants' profits suffer no diminution thereby; and until this is satisfactorily demonstrated the elimination of this item must in my opinion vitiate any calculation of the incidence of taxation.

4. Still more earnestly do I protest against the process of reasoning by which it is sought to uphold the theory put forward by Mr. Wilson that the land revenue of India is of the nature of rent, and is not raised by taxation. Rent is a payment made by the occupier of a property to the owner for the use of the same, and to establish the above position it must be shown that the ownership of the soil in India vests in the State. Mr. Wilson did not venture on such a statement, possibly because a few

weeks before he made his speech a bill had been introduced into the Legislative Council to amend an existing Act for the acquisition by Government of land for public purposes; but it is directly asserted in the Report. It is there stated that "the "land revenue is therefore with more propriety regarded as a rent paid by a tenant, "often a highly favoured tenant, to the paramount owner than as a tax paid by the "owner to the State." This idea of the Government of India being a vast landed proprietor, and the occupiers of the soil its tenants, was repeatedly brought forward in the course of our discussions, and, although opposed by me to the best of my ability, has found expression here and elsewhere in the Report. I, therefore, now place on record my reasons for dissenting from a doctrine for which I believe there is no historical foundation, which the action of Government itself goes to disprove, and which if accepted might lead to most mischievous results.

5. In support of the theory of the proprietary right of the State in the soil it is stated in paragraph 2, page 90, that by "immemorial and unquestioned prescription "the Government is entitled to receive from the occupier of the land *whatever portion* "*it requires* of the surplus profit left after defraying the expenses of cultivation." If for the sentence which I have italicised the words "a certain fixed portion" be substituted, the claim of the State would be correctly represented. That foreign conquerors did by force take such portion as they required may be conceded, but it is inaccurate to say that they were entitled to do so. The claim of the State is distinctly limited by Menu, the oldest authority on the subject. He says, "The revenue "consists of a share of grain, and of all other agricultural produce . . . . . "On grain, one-twelfth, one-eighth, one-sixth, according to the soil and the labour "necessary to cultivate it. This also may be raised in cases of emergency, even as "far as one-fourth." Now here there is not a word which can be twisted to show that the State has any right of ownership in the soil; all that it is entitled to is a certain fixed share of the produce; and on this ancient right, and on this only, our system of land revenue settlement is based, as were those which we found in existence when the country came under our rule. Coming down from Menu to our own times, let us see if the British Government has ever asserted a general right of ownership in the land. When railways were first commenced in India one of the concessions made by the State was the provision, free of charge to the companies, of the requisite land. If, as represented in the Report, the Government was "the paramount owner," and the agricultural community merely its tenants, all that it had to do was to exercise its rights of ownership, give its tenants notice to quit, and hand over the land to the railway companies. But so unconscious was it of having such rights, that legislation was had recourse to, and in 1850, 1857, 1860, and 1870 Acts were passed to enable the Government to acquire land for public purposes, and an elaborate code of procedure was framed to regulate the mode of acquisition and the price to be paid by Government to the owners. And if further evidence be thought necessary to support my view as to the relative positions of the Government and the people of India in regard to the land, I turn to that chapter of our Report which treats of tenures, and ask attention to paragraph 3, page 111, where the position of the ryot in the Madras Presidency is described. His proprietary right in the soil is there fully recognised, and it is explained that he is absolutely free to let, mortgage, sell, devise or otherwise alienate his holding; and to this may be added that he also has full liberty to fell timber and to open mines and quarries thereon, nor is there any restriction as to his mode of farming or the description of crops he may raise. I defy anyone to show that the rights of the Indian landholder, under whatever name he may be known in various parts of the country, are here overstated, and I submit that the exercise of all or any of them is inconsistent with the position of a tenant of the State, which is that assigned to him in the Report. If the foregoing be correct, what vestige of ownership in the soil remains to the Government? That it is practically *nil* is shown by the fact above referred to, that legislation was necessary to enable the State to acquire by purchase the rights of the people in the land. If then the State be not the owner, the people cannot be its tenants, nor can the share of the produce of the land which they contribute towards the public necessity be designated rent. It is, therefore, a tax, and as such must be taken into account in calculating the incidence of taxation.

Local Financial Responsibility and Local Taxation.

6. Section VII. of the first part of the Report, pages 56–59, is devoted to setting forth the advantages of local financial responsibility in the administration of famine

relief, and as conducive to judicious economy such a policy has my cordial support. But whilst agreeing to this, as a general principle, I wish to guard myself against appearing to assent to any proposal which, in order to carry out the doctrine, aims at an enhancement of local burdens irrespective of the consideration whether each and every province is equally able to bear the addition. The main object to be kept in view is, to use the words of our instructions, "how far it is possible for Government "by its action to diminish the severity of famine, or to place the people in a better "condition for enduring them," and it seems to me that we shall not attain this end by unduly pressing on the resources of the inhabitants of any particular tract in time of prosperity. The difficulties in the way of a development of this system of local financial responsibility are fully recognised at paragraphs 173 and 174 of the first part of our Report, and the Government of India have declared that such responsibility must be limited by the power of each province to protect its people against famine and to meet the cost of relief. In making proposals, therefore, for any particular province which will entail additional taxation, the ability of the inhabitants of the locality to bear it must be carefully considered. It does not follow because the incidence of taxation when it is distributed over 185 millions is individually light, that the pressure is uniform. Some may have to bear less than their proper share of the burden whilst others are unduly weighted. In the proposal to levy additional taxes on the landed classes of Bombay and Madras, which finds expression at paragraph 180, page 58, of Part I., this necessary discrimination has not been exercised. At paragraph 10, page 93, of Part II., it is stated that the share of general taxation borne by the landed classes, including the land revenue, is about five shillings and sixpence per head, and a further calculation shows that the incidence of land revenue and local cesses connected with the land is only three shillings and ninepence. This is based on the assumption, borne out by the census returns, that the proportion of the agricultural class to the whole population of India is about 75 per cent., and so far I do not challenge the accuracy of the calculation. But when we come to estimate the burden which the landed classes of each province have to bear we find that the above measure of individual incidence no longer holds good. I take first, for the sake of comparison, the North-Western Provinces and Bombay. A reference to the Census Returns of 1871–2 will show that in the former province the land revenue and local cesses amount to 4,773,020*l.*, which, distributed amongst an agricultural population of 17,376,967, gives an incidence per head of about 5*s.* In the latter province 4,188,613 persons have to pay 3,158,763*l.*, or about 15*s.* per head. In the North-Western Provinces the agricultural population is more than half of the total population, and in Bombay it is about one-fourth. If a comparison be instituted of the individual incidence of the land revenue as regards adult males engaged in agriculture, the extent to which the amount varies in different parts of the Empire is similarly shown. In Bengal and Assam the land revenue and local cesses amount to 3,946,289*l.*, and the number of male adults employed in agriculture is 11,690,478, which gives the incidence per head at 6*s.* 6*d.* In Madras the land revenue and local cesses amount to 4,930,649*l.*, and the adult males employed in agriculture number 6,958,492, giving an incidence per head of 14*s.* These figures, I think, clearly show that the lightness of the general incidence of taxation cannot be accepted as a proof of the ability of each and all of the provinces which make up the Indian Empire to support additional burdens, nor does the circumstance of such having been imposed without undue pressure in Northern India and Bengal two years ago prove that the adoption of similar measures in Bombay and Madras would not unfairly tax the resources of the agriculturists in those provinces; for even if it be admitted that the special causes which in 1878 were held to be sufficient to exempt them from the additional rates on land have ceased to operate, the fact still remains that their agricultural profits are already far more heavily taxed.

H. E. SULLIVAN.

LONDON:
Printed by GEORGE E. EYRE and WILLIAM SPOTTISWOODE,
Printers to the Queen's most Excellent Majesty.
For Her Majesty's Stationery Office.